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Hunterian Lecture

ON

DUPUYTREN'S CONTRACTION OF THE PALMAR FASCIA: DUPUYTREN'S LIFE AND WORKS.

Delivered at the Royal College of Surgeons of England on Feb. 12th, 1917,

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MR. PRESIDENT AND GENTLEMEN,—In long-standing and severe cases of Dupuytren's contraction, certainly all those in which the affected digits are rigidly bent into the palm, the surgeon who trusts to the operations hitherto in vogue will be disappointed. Whether he divides or excises the palmar fascia he cannot straighten the contracted finger by manual force, still less can he trust to this being effected by subsequent splint-pressure, however prolonged.

CAUSATION OF CONTINUED CONTRACTION AFTER OPERATION.

What is it that prevents extension of the contracted fingers after the fascia has been thoroughly divided or excised? Obviously the skin will not account for this failure, and there are three other possible explanations:—

1. The one most generally assigned is a consecutive contraction of the flexor tendons. These have often been divided in the vain hope that the resistance would then be overcome. But it is easy to prove, without this useless test, that the fault does not lie in the tendons, for full flexion of the wrist or metacarpo-phalangeal joints makes no difference at all. This is conclusive, as thereby we relax thoroughly both flexor profundus and sublimis.

Before Dupuytren discovered the real cause of the contraction, which ever since has borne his name, the view chiefly held was that the flexor tendons were to blame, and it is curious to find traces of this exploded view surviving still. Nothing is, however, more certain than their innocence of any share in producing or keeping up the deformity, except that slight flexion of the fourth and fifth digits at the first interphalangeal joint is the normal position of rest. The possible relation of this fact to Dupuytren's contraction is discussed later.

2. Intra-articular adhesions in the metacarpo-phalangeal and interphalangeal joints of the contracted fingers might be invoked as the cause of the resistance, especially by those who see a close relation between this condition and gout or rheumatism. The idea of the existence of these adhesions is also favoured by the grave danger of stiffening of the fingers during the splint-treatment ordinarily pursued after operation, a danger which can hardly be impressed too strongly.

It would be difficult to disprove the theory of adhesions in the finger-joints without the aid of the X rays. But reference to Fig. 4, which may be taken as a typical instance of Dupuytren's contraction, shows a perfectly smooth articular surface in each joint. In the specimens I have obtained by operation (excision of the first interphalangeal joint) the joint surfaces were always found to be normal. Both the explanations suggested are therefore seen to be groundless. The true reason is that, owing to the second phalanx being extremely flexed so that its base is pressed against the neck of the first phalanx, and, owing to this position being kept up during many months or years, the glenoid ligament in front of this joint, as well as the lateral ligaments, become shortened and incapable of extension.

TREATMENT.

The only way to overcome this obstacle is to excise the head of the first phalanx. Briefly the method is as follows:—

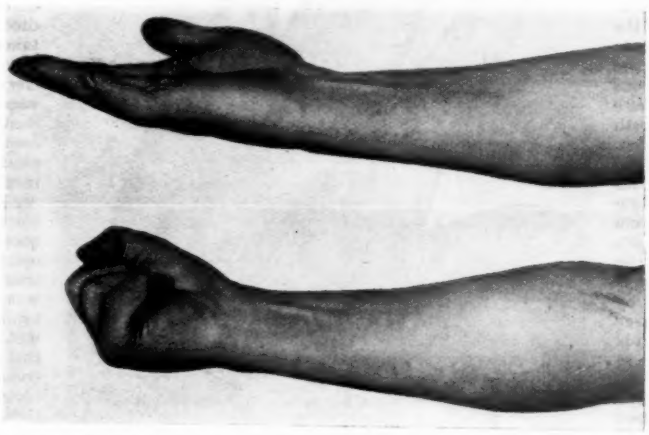
1. Through a palmar incision the bands of contracted and thickened fascia are dissected out, including their prolongations in front of the first phalanx (the best form of incision will be discussed later). The palmar wound or wounds are closed with the finest black silkworm-gut. The finger still remains flexed at the first interphalangeal joint.

2. The hand is turned over so that the dorsal surface is uppermost, a semilunar incision is made over the first interphalangeal joint, the extensor tendon divided, the head of the first phalanx cleared to its neck, the latter cut across and the head dissected out.

3. The extensor tendon is slightly shortened and its two ends united, preferably with fine kangaroo tendon or Japanese silk, and the small dorsal incision (which is, of course, quite separate from the palmar one) is then sewn up. The finger should now become perfectly straight (or nearly so) *without any tension whatever.*

4. No splint is required in the after-treatment, the gauze dressing is a sufficient support, gentle active and passive movements should be resorted to within the first few days. *No digit should be allowed to stiffen.*

FIGS. 1 AND 2.



Case of severe Dupuytren's contraction after treatment by excision of palmar fascia and head of first phalanx. The hand is seen in full extension in the upper figure, in flexion in the lower one. The grip was perfect. *No splints were used after the operation.*

I attach equal importance to two points—namely, the excision of the first phalangeal head and the avoidance of the prolonged and irksome splinting usually resorted to. The latter has been responsible, as will be illustrated later, for many stiff fingers and hands following the orthodox operations, and I believe it is to some extent also responsible for the well-known tendency to recurrence of the contraction after them.

The following case illustrates how excellent a result can be obtained by the method advocated without the employment of any splint in the treatment from beginning to end, further how perfect a new joint is formed at the site of the excision.

The patient was a man, aged 54. His right little finger was alone affected, but was bent right into the palm. I dissected out the band of palmar fascia thoroughly, but found it impossible to alter the deformity materially. I then excised the head of the first phalanx, shortening the extensor tendon and uniting it by fine kangaroo-tendon sutures. The finger came practically straight without tension; aseptic dressings were applied without a splint.

He was back at work very soon, and Figs. 1 and 2 show in a perfectly unbiassed way the result several months later. The upper figure shows his hand in voluntary extension; the little finger is the least bit bent at the two digital joints, but this is no more than is habitual with many people who possess normal hands. In fact, it may be termed a normal position of rest for the little finger.

In flexion it will be noticed (Fig. 2) how good is the movement at the new joint; his grip was *strong in all the fingers.* Practically no sign of the small dorsal scar could be detected,

the palmar one was very inconspicuous. Here I would note that in some cases where forcible stretching of the finger has had to be employed by the surgeon during and after his operation the palmar scar becomes thick, disfiguring, and uncomfortable when the patient uses his hand. The well-known pathological law is illustrated that intermittent pressure and irritation of tissues always cause hypertrophy. It is just this hypertrophy that we have to dread and avoid in our treatment of Dupuytren's contraction.

The photograph shows the very slight degree of shortening of the digit produced by excision of the first phalangeal head. The normal relative length of the different digits is variable and of no importance. A slightly shortened but thoroughly useful finger is a very different thing from a stiffened and useless one.

It must not be claimed that a perfect result, functional and cosmetic, can be obtained in every case of Dupuytren's contraction, owing to the extreme length of time which is sometimes allowed to elapse before operative aid is sought. This point is illustrated by the following case.

A man, aged 54, was treated for Dupuytren's contraction of the ring finger, of no less than 10 years' duration. (Fig. 3.) Excision of the band of palmar fascia made no difference to the deformity. I then removed the head of the first phalanx and the finger came straight. But though the deformity was thus removed, the other two joints had stiffened during their 10 years' rigidity, and a perfect functional result could not therefore be obtained.

FIG. 3.

The contraction is seen to involve the first interphalangeal joint entirely. (See text.)

HISTORY OF VARIOUS METHODS OF TREATMENT.

A few words must be devoted to the history of the various methods of treatment in Dupuytren's contraction. Prior to the publication of the French surgeon's accurate pathological account of the disease in his "Leçons Orales" (vol. i., 1832) there was no treatment worth mentioning for the condition. Thus, Sir Astley Cooper simply referred to it as incurable. Dupuytren, having proved that the palmar fascia was to blame, advocated open transverse division of the fascial bands, the wounds being allowed to heal by granulation. Three cases only are described in his account; they were said to have been cured, but no surgeon at the present time would employ this method or hope for a cure to result from it.

Then came, with the wide use of tenotomy for club-foot, &c., the introduction of the subcutaneous division of the fascia in Dupuytren's contraction. This required many operations and laborious treatment with special splints applied to the fingers. Mr. William Adams's name is to be associated with the subcutaneous method, which is still employed by some surgeons; in slight cases it may meet with success. Following Lord Lister's great discoveries, the open excision of the fascial bands naturally came into vogue, and must of necessity continue to form a chief part in the treatment. Such attempts to cure the deforming contraction as the use of X rays, fibrolysin, ionisation, short-circuiting intestine for imaginary stasis, &c., need not be described here; they are quite useless.

As regards the open excision of the fascia we may admit that in early cases it attains a good result. But in long-standing ones where the contraction is very pronounced I contend that this method, however carefully performed, leaves a good deal to be desired; it is far from perfect.

1. It is impossible by it alone to straighten the bent finger; indeed, sometimes the degree of flexion remains the same as before, and the surgeon may be driven to amputate the digit.

2. Following the operation a prolonged and irksome splint-treatment is always advocated, and in the subjects of Dupuytren's contraction stiffening of the digits and hand is very apt to occur as a result. If any splint be employed it should only be for a few days whilst the wound is healing, and it is best to remove it daily so that the digits concerned should be gently bent.

Let the surgeon remember that *stiffness of the fingers resulting from his treatment may prove a worse evil than their original contraction.* As a rule the patient only submits to operative measures when the finger is bent strongly into the palm, when the deformity has lasted a long time, and at this stage the question of consecutive changes in the ligaments of the finger-joints becomes as important as the contraction of the fascia.

ANATOMY AND PATHOLOGY.

Strange to say, the current teaching as to the joint most concerned is quite wrong. To quote one of the most recent writers on the subject.

The forced flexion of the finger concerns solely the metacarpo-phalangeal joint. ..... If one tries to extend the first phalanx one makes the cord project forwards which ties it to the hollow of the palm. The second phalanx is equally flexed on the first, the third is in a position intermediate between flexion and extension, but these last two segments allow of easy extension and have preserved all their freedom and integrity of passive motion.[1]

As will be shown directly, almost every particular dictum in this account, taken from the best French text-book, is untrue. A German writer[2] states more vaguely that in Dupuytren's contraction "the bending commences in the metacarpo-phalangeal joint and later involves the lower ones."

Similar views from English works could be readily quoted; in fact, the universal opinion prevails that as contraction of the palmar fascia would naturally be expected to involve flexion of the metacarpo-phalangeal joint, therefore it alone need be considered. It has not occurred to surgeons to test these views by X ray photographs. Fig. 4 is taken from an exact tracing of one (made by my friend, Dr. Gilbert Scott, at the London Hospital). It shows the little finger of each hand of a man in whom Dupuytren's contraction was symmetrical and concerned only the fifth digit. The lowest interphalangeal joint (C) is in full extension, the metacarpo-phalangeal one (A) is slightly bent (about 40 degrees), whilst the joint between the first and second phalanges is bent to the utmost possible extent (a full right angle). The base of the second phalanx is seen to be pressed against the neck of the first one; no further flexion could occur. In front of each last phalanx slight bony irregularity will be noticed, and in one finger (D in the upper figure) this outgrowth of bone forms an eminence in front of the second phalangeal shaft. Such outgrowths or irregularities are common in the fingers of working men, and are to be ascribed more to hard use of the tendons than as proving a relation (often wrongly asserted) between Dupuytren's contraction and osteo-

[1] Mauclaire on Dupuytren's Contraction, Le Dentu and Delbet Traité de Chirurgie, xxxiii., 127.

[2] Sultan, Specielle Chirurgie, ii., 415.

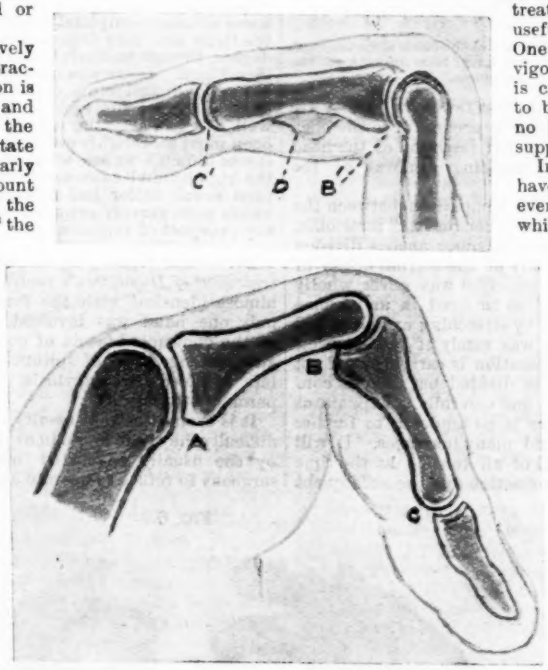
arthritis. It will be noticed that in this typical X ray picture the actual joint surfaces are perfect.

It is somewhat difficult to explain why in Dupuytren's contraction it is the first interphalangeal joint that is the important one, though it is easy to see why the last one should escape, for the palmar fascia sends no fibres down so low as that. I may suggest that in the normal hand at rest extension is the usual position of the first and last joints, whilst at the second joint (the first interphalangeal one) flexion is habitual. Granting that the lowest slips of hypertrophied palmar fascia reach down in front of this latter joint, we may conclude that its usual position of flexion becomes readily exaggerated as Dupuytren's contraction commences and progresses.

At any rate, whatever the explanation may be, Mauclaire's description of the pathology is quite mistaken. It is the first interphalangeal joint which is most affected by the contraction, and it is this joint (so far from "preserving its freedom and integrity of movement") which in long-standing cases is found to offer an invincible obstacle to the finger being rectified after the fascia has been divided or excised.

It has, I hope, been conclusively shown that in Dupuytren's contraction the site of greatest flexion is the first interphalangeal joint, and it is a remarkable fact that the palmar fascia in its normal state is not described as reaching nearly so low as this. In the long account and numerous illustrations of the palmar fascia given by Testut [3] the lowest point to which the fibres are traced is the base of the first phalanx on its dorsal aspect. Practically the whole fascia ends at the level of the web. In other words, according to Testut, the human hand does not *possess any fibrous bands going to the fingers which by their hypertrophy and shortening could possibly produce flexion of the first joint.* Yet this is without doubt most contracted in this disease. Professors D. J. Cunningham and Merkel in their treatises on Anatomy, Poirier and Charpey in their voluminous account of the fascia, are equally silent on the subject. The last-named authors note that a few longitudinal fibres may be traced to "the level of the highest furrow across the fingers where they end in the skin." This point is at least an inch above the joint concerned. It is noteworthy that Dupuytren's observations have led anatomists to investigate and describe the palmar fascia with especial care and that the smallest fasciculi of it have been followed out.

FIG. 4.



Radiographs from a typical case of Dupuytren's contraction (involving both little fingers). The explanation of the lettering is in the text.

In an excellent dissection of the palmar fascia in the Royal College of Surgeons Museum some delicate fibrous bands are shown in front of the first phalanx, chiefly attached to its sides, but even if these were hypertrophied and shortened they could not produce flexion of the second phalanx. Yet clinical experience shows there is actually a firm band of fibrous tissue running down in front of the first interphalangeal joint, which is responsible for the chief deformity and which should always be dissected out in the open operation. We must, therefore, admit that in Dupuytren's contraction the thickening does not limit itself to the normal anatomical bands, but that fresh fibrous prolongations are developed. Certainly in the palm the overgrowth of the fascia (and sometimes of the skin) becomes almost a caricature of the normal arrangement.

[3] Testut and Jacob: Traité d'Anatomie Topographique, 1914, ii., 827. Also Testut: Traité d'Anatomie Humaine, 1899, i., 918.

THE RISK OF AFTER-TREATMENT BY CONTINUOUS SPLINTING.

The after-treatment usually advocated in a case of Dupuytren's contraction—i.e., that following operation, whether subcutaneous or open division, is so serious and irksome that any method which lessens, or, better still, does away with it, deserves a careful trial. The following is the course of treatment after operation which is at present in vogue. A special metal splint which holds all the joints rigid from wrist down to the terminal joints of the affected fingers "must be worn night and day for the first month"; then a still longer dorsal splint to be worn again night and day, but removed two or three times daily for massage and passive movements to be practised. With this continuous splinting for ten weeks it is obvious that a working man for the whole of this time would be unable to use his hand, and at the end of it would doubtless have lost his employment. This is not all, however. For a further term of at least four months the patient should not give up the use of the splint at night! "When there is much stiffness of the joints a course of treatment by superheated air is useful in getting the part supple." One thing is certain—that if such vigorous and prolonged splinting is carried out the joints are sure to be stiffened more or less, and no hot-air baths will give back suppleness to them.

In the account from which I have quoted it is remarked that even if this irksome treatment, which puts out of use the hand for two or three months, is thoroughly carried out "no permanent cure can be looked for, as the contraction recurs within three or four years and a second operation is required." This, it is stated, happens after both the multiple division of the fascia and the V Y method.[4]

Now, it may fairly be asked whether even a man of leisure, one not required to earn his bread by manual labour, would care to undergo such a tedious period of crippling of the hand—for such it comes to. For a working man (and most of us have to use our hands extensively) it is positively disastrous, as I have said it generally means that some other man is found to occupy his berth by the time the patient is allowed to give up his splint. Nor can a working man be expected to apply the splint every night for a period of six months. It may be said by the advocates of the treatment given above that the whole hand is not confined, only the fingers operated on. But a splint which fixes these and the wrist-joint *does* put the hand *hors de combat* so far as any working use is concerned. Let any surgeon try wearing such a splint for a week—much less for two months—and he will realise what an infliction and a disability it amounts to. I wish to bring out clearly that by the method now advocated this prolonged splint treatment is done away with; after the operation wounds have healed (a week should suffice) no splint whatever is required, the patient should be encouraged to flex and extend all the joints of all the fingers, and should certainly be back at work within a few weeks of the date of operation.

As to the risk of recurrence, my experience of the method is not long enough to allow me to be dogmatic, but my conviction is that the reliance on splints to stretch the fingers and complete the case is not only fallacious but is apt to

[4] The quotations are from Cheyne and Burghard's Surgical Treatment, revised by Messrs. Legg and Edmunds. Similar stringent directions as to the after-treatment will be found in other books.

increase the formation of fibrous tissue in front of the digits, *certainly it risks stiffening of joints and adhesions of tendons to their sheaths.* And once this stiffening has been produced, as I have seen several unfortunate examples, no known treatment will effect any material improvement in it. To sum up the question—loss of suppleness in the fingers due to the surgeon's use of splints may be a greater drawback to the patient than the original contraction. In the after-treatment of a case of Dupuytren's contraction splints

FIG. 5.

Indifferent result after treatment by excision of the fascia alone followed by prolonged splinting. The little finger had been amputated, the others remained stiffened in the position shown.

should be dispensed with after the first few days, if they are used at all. This desirable end can be secured if to the open excision of the fascial bands is added resection of the head of the first phalanx with its resulting removal of the tendency to flexion of the digit.

A fair analogy is afforded by the comparison between the modern and the old treatment of "congenital" torticollis. When the surgeons were content with subcutaneous division of the sterno-mastoid (perhaps only of the sternal origin of the muscle) the tendency to contraction was never wholly removed, the patient's neck had to be fixed in an irksome apparatus, subsequent treatment by stretching exercises had to be employed, and the result was rarely if ever perfect. On the other hand, if the open operation is carried out, if not only both heads of the muscle be divided but also its contracted fascial sheath thoroughly and carefully, all apparatus may be dispensed with and there is no tendency to further contraction. Of this I have had many instances. It will probably prove that the removal of all tension at the time of operation on Dupuytren's contraction and the subsequent avoidance of splint-treatment will have equally lasting effects.

SOME RESULTS OF PREVAILING METHODS OF TREATMENT.

It may seem invidious to bring forward examples of failure of treatment by other surgeons, but the view is still held that all cases (mild or severe) of Dupuytren's contraction can be treated successfully by the prevailing methods—either of subcutaneous division or of open excision of the fascial bands. It is my contention *that they cannot*, and my wish to introduce a new and real improvement. Fig. 5 illustrates the result in a case operated on by a first-rate surgeon a few years ago. It is clear that after open excision of the palmar fascia he found it impossible to improve the position of the little finger, which was then amputated. The fascia was then dissected away from the third and fourth digits, which were subsequently treated on a splint to further the straightening. From this splinting a good deal of stiffening has resulted and the fingers cannot be straightened any more than is shown in the figure. They can be bent a little, especially at the metacarpo-phalangeal joints, but the grip of the hand does not include these fingers, it is poor at the best and limited to the thumb and index finger.

The next case illustrates still more forcibly my contention, *arthritis and contraction of nearly all joints of both hands following the treatment of Dupuytren's contraction of the two inner fingers.*

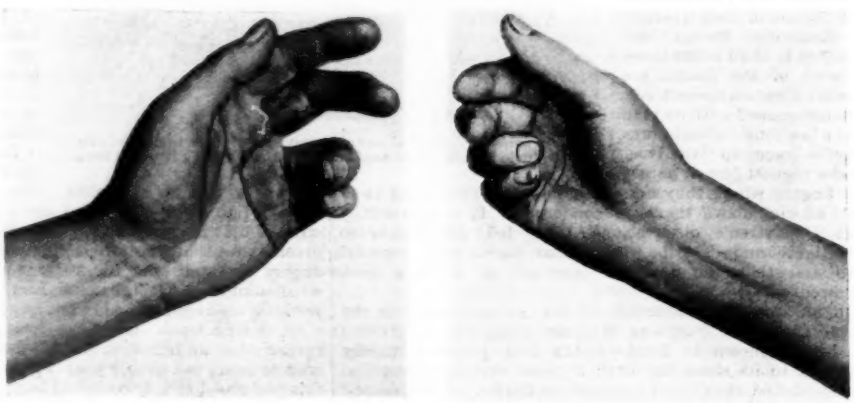
The patient, aged 57, a temperate and healthy man, who showed no evidence of either gout or rheumatic tendencies elsewhere, came under treatment for Dupuytren's contraction of the ring and little fingers of both hands of seven years' duration. The other fingers and thumbs were perfectly supple.

He had two operations performed, first on one hand and then on the other, the contracted bands being dissected out by linear anterior incision. These operations were done by different surgeons and the after-treatment carefully carried out, especially as regards making the patient wear a palmar splint at night-time. This latter procedure he kept up for 18 months, when I saw him for the first time. Both hands were then stiffened as regards all the fingers and the thumbs, some of them completely rigid and contracted. On one hand the little and ring fingers had again bent in to an extreme degree, though no fresh bands of palmar fascia could be felt. (See Fig. 6.) There was undoubted evidence of osteo-arthritis of various digital joints, especially of the first interphalangeal ones, and from the rigidity there must have been intra- as well as extra-articular adhesions. Massage, baths, &c., had been most thoroughly employed, though without benefit, and it was difficult to see what more could be done to improve the rigidity and osteo-arthritis. The condition would have been much better had no operation ever been done, as his hands were gravely crippled in all the digits, nor was there any prospect of improvement.

Permanent rigidity of the whole hand left after operative treatment of Dupuytren's contraction of one finger. This was almost identical with the former case, though fortunately only one hand was involved. The surgeon had operated on the contracted fascia of one finger; owing to too careful and prolonged use of splints not only were all the fingers left crippled by ankylosis, but the wrist-joint became permanently rigid.

It is such disastrous results as the above, coupled with the difficulty they have found in overcoming the original deformity by the usually advocated methods, that have led some surgeons to refuse to operate on Dupuytren's contraction.

FIG. 6.



Crippling of both hands from multiple osteo-arthritis, &c., due to prolonged splinting after operation (excision of palmar fascia). All the digits are rigid and bent, the deformity has recurred, and both hands are practically useless. (See text.)

INCISIONS USED IN DEALING WITH PALMAR FASCIA.

The examples adduced must be enough to bring home the dangers of splint treatment after the operation; a few words remain to be said about the incisions employed in dealing with the palmar fascia. The V Y method in either of its forms, whether the angular reflected flap is made of skin only or of skin and fascia together, is not a good one. It

involves too much scarring of the palm, the prolongation of the fascia to the second phalanx (which we have seen is all-important) cannot be dealt with by this method. In plastic surgery elsewhere (for example, in dealing with ectropion of the eyelids) the V Y method is a failure. I have never known it successful in Dupuytren's contraction.

Again, it is not satisfactory to remove much skin from in front of the bent fingers and to trust to skin-grafts. Mr. W. H. A. Jacobson[5] well pointed out their drawbacks. The wide excision of skin and fascia, followed by transplantation of a flap from the side of the chest (Paul Berger's method)[6] has nothing whatever to recommend it. Among other faults, it fails entirely to deal with the contraction of the first interphalangeal joint. It is strange to find this method recommended above all others in the latest French work.

Seeing that we entirely reject the wide excision of palmar skin as well as the V Y method of a shifting flap, what is the best form of incision to employ? With the proviso that all scars in the palm may prove a slight drawback and should be made as short as is consistent with the thorough dissection of the contracted bands, further that it is useless to lay down exact lines of incision for differing cases, the following points are worthy of consideration.

1. The main incision must be linear and vertical, over or closely parallel to the ridges of palmar fascia. Small transverse incisions at the front of the web may be needed, and any prolongation of the fascia in front of the first phalanx must be followed down and dissected out.

2. In the case of the middle or ring finger it is impossible to avoid placing the incision towards the mid-palm. In the case of the little finger alone the incision may be made rather to the ulnar side of the hand, where the skin is more supple and less subject to pressure.

3. In closing the wounds the finest silkworm-gut (ophthalmic) should be used. It is rarely necessary to leave any raw area to granulate up, especially if the head of the first phalanx has been excised and tension in the front of the finger thus removed.

Should a small plastic operation be required a tongue-shaped flap *with its base upwards* might be taken from the side of the digit concerned and shifted over so as to lie transversely. I have repeatedly used this method in cases of ectropion with good results, but in Dupuytren's contraction it can be rarely necessary. As such a flap contains the whole thickness of the skin and its blood-supply, and is fixed in place by two or three fine sutures, it is much better than the epithelial grafts advocated in the text-books.

ON DUPUYTREN'S LIFE AND WORKS.

Guillaume Dupuytren, the son of a poor *avocat* (or barrister-solicitor) in the small town of Pierre-Buffière, was born on Oct. 5th, 1777. He died in Paris on Feb. 5th, 1835, at the age of 57. Dupuytren was therefore a contemporary of the two great warriors Napoleon and Wellington, being eight years junior to them, and his birth almost coincided with that of the three immortal masters of Art—Beethoven, Turner, and Hokusaï. Sir Astley Cooper was his contemporary and friend, but was his senior by nine years.

There are many biographical reviews of Dupuytren in French, but nothing like a complete account of his life or works. In English there is hardly anything of value, though the New Sydenham Society gave us his "Leçons Orales" in an admirable translation. Of the French notices of Dupuytren several were written in a very critical or hostile spirit, and even as to the facts and dates of his life contradictory accounts are frequently met with.

I hope later to publish more fully a biography of the man who was certainly the most famous, if not the greatest, of all French surgeons; on the present occasion a brief notice will have to suffice.

In 1789, the first year of the French Revolution, a certain Captain Keffer, when passing through Pierre-Buffière with his regiment, was so taken with the young Dupuytren that he offered to have him educated in Paris, an offer gladly accepted by the parents. The next four years were spent in the Collège de la Marche, of which M. Keffer, the captain's brother, was the principal. Dupuytren's studies were brought to an abrupt end at the age of 16 by the closure of the Paris schools, and in 1793 he journeyed home on foot—200 miles. A few months later, his father having decided in favour of the profession of medicine, Dupuytren returned to Paris. His student days were passed under the greatest difficulties owing to extreme poverty. His relations would not or could not help him, and in a state of complete destitution he would have gone under but for the succour of an illiterate water-carrier from Auvergne, named Jean Sebastian. This poor but saint-like man provided lodging and food for Dupuytren (who had for many weeks subsisted on bread alone), found money for necessary books and fees, and was rewarded by Dupuytren's appointment (at the age of 18) to be Prosector of Anatomy at the École de Santé. This post was paid, however poorly, and by teaching anatomy and surgery (!) the young student eked out a living. Unfortunately his benefactor died, in Dupuytren's arms, at the very time when the latter was about to pay back some of the priceless help he had received.

He had taken his degree as Doctor of Surgery before he was 20, and five years later we find him "chef des travaux anatomiques," and, what was of far more importance, second surgeon (a new appointment) at the Hôtel Dieu. Both appointments were given after public competition (Concours). M. Pelletan was the chief surgeon at the Hôtel Dieu, and it must be owned that Dupuytren proved an unpleasant colleague. It is evident from his writings that he had a low opinion of Pelletan's surgical ability, if not a strong personal animosity towards him, and in 1808 he succeeded in compelling him to resign. Thus, at the age of 30, Dupuytren stepped into the post of surgeon to the Hôtel Dieu and for the next 20 years he had sole control of the surgical wards in the only large hospital in Paris. In this unique position, with the care of some 500 beds, he accomplished an amount of strenuous work which can rarely, if ever, have been surpassed. He did everything—operated on all cases alike in general surgery, ophthalmic work, gynæcology, and other special branches. He lectured to classes which sometimes numbered 500, he conducted an out-patient clinic, made surgical post-mortems, visited the wards, and performed the dressings himself. His hospital visit began every day at 5 A.M., summer and winter he rarely missed a day; he left the Hôtel Dieu only at 1 P.M., and habitually made an evening round of the wards. With all this prodigious hospital work he carried on a private practice which enabled him to save the great fortune of £150,000. His repute as a consultant, an operator, and a teacher was European; his only rival in these respects was Sir Astley Cooper.

Some Events in Dupuytren's Life.

Dupuytren must have witnessed the stirring events of the Revolution in Paris. Marat lived and was assassinated by Charlotte Corday in the Rue de l'École de Médecine; Marat's club—the scene of his and Danton's frenzied orations—stood at the end of this street, and the hall itself became ultimately the Dupuytren Museum. This is the only part of the old convent of the Cordeliers which has survived to the present time.

When the allied troops were taking Paris in 1814, Dupuytren showed personal bravery at the head of an impromptu ambulance party which he organised from his internes of the Hôtel Dieu and led out to La Villette.

During the occupation of Paris Dupuytren, then and until his death residing in a house on the right bank of the Seine opposite to the Louvre, had quartered on him a young Russian ensign named Kazakov, who has left an account of his host which is full of interest. This Russian officer survived until 1883, his narrative only came to light a few years ago, and I discovered it by accident. Kazakov describes Dupuytren as having been a kindly but tyrannical host, living in simple style (although he then enjoyed a large practice and income) with his wife and only daughter. It may be noted that Madame Dupuytren seems to have left him later—there was some scandal. It was his ambition to make his daughter a great heiress, and with the exception of a moderate legacy to found a Chair of Pathological Anatomy, all Dupuytren's wealth passed at his death to her.

Alike under Napoleon, Louis XVIII., Charles X., and Louis Philippe, Dupuytren's star never failed him. His being a freethinker in religion did not hinder his Court appointment as surgeon to bigoted Catholic monarchs. When the King's brother, the Duc de Berri, was assassinated at the Opera, Dupuytren was called to attend him; he subsequently published an often-quoted account of the death scene. This was written partly to defend himself from hostile critics and professional enemies, who never failed Dupuytren throughout his whole career. The Duc de Berri

[5] Jacobson's Operations of Surgery, 1907 edition, i., 30.
[6] Paul Berger, Acad. de Méd., April 20th, 1892.

had been stabbed in the chest, and for some reason Dupuytren thought it right to enlarge the wound. The dramatic scene at the Opera, when the Duke's wife met and acknowledged for the first time two illegitimate daughters of her husband, has been pictured and engraved. Amongst the crowd grouped round the dying Prince Dupuytren's portrait may be recognised.

This is the only one of all the State episodes in Dupuytren's experience of which he has left a record. He was, in fact, through life absorbed in his professional work; he had no other interests, no politics, no religion, and no friend except his daughter. A stern, melancholy, ambitious, and bitter man, it is difficult to idealise Dupuytren except as a martyr to his work. When urged to have assistance at his hospital, or to take some holiday or rest, his reply would be, "There is no rest but the grave." An attack of partial hemiplegia during the delivery of a clinical lecture warned him of the inevitable breakdown which must follow such perpetual toil as his; two assistant surgeons were practically forced upon him. A journey to Italy for the benefit of his health, the first time Dupuytren ever left France, was of no avail. He returned to Paris and resumed his arduous work. A chill contracted during his hospital work resulted in pleuritic effusion, of which he died.

It is a mistake to assume that the Dupuytren Museum was founded or endowed by him: it owes nothing but its name and a few specimens to him. In this respect our Hunterian Museum, which was in being long before Paris had any adequate pathological collection, is a marked contrast, as John Hunter gave everything to it. In size and importance our museum far surpasses its French rival: there is really no comparison to be made between them.

Dupuytren's Surgical Work.

Dupuytren's surgical teaching and experience are contained in the "Leçons Orales" and the second edition of Sabatier's "Operative Surgery." In both cases his pupils, aided and directed by Dupuytren, reported his lectures and arranged his observations. The "Leçons Orales" deals with a great number of subjects in a somewhat disjointed manner, the other work is more systematic. Both contain copious narratives of cases and pathological records spread over several thousands of pages.

It is strange that Dupuytren neglected the aid of all illustrations, whilst Sir Astley Cooper employed them so freely and so well that it is still a pleasure to consult his works. Had Dupuytren followed his rival's example his works would not have fallen into such oblivion. Dupuytren lectured to immense audiences, but there is little reason to consider him an eloquent orator, and his writings lack the attraction and the style of Sir James Paget or Sir Frederick Treves. In spite of his unique position, in sole control during a generation of the one great surgical clinic in Paris, it can hardly be claimed for Dupuytren that he made great discoveries in surgery. Nevertheless, we owe to him many valuable observations and real advances in our science. He first demonstrated the nature of yellow elastic and erectile tissues, and he proved on animals that excision of the spleen could be safely carried out.

He showed that iliac abscess on the right side was frequently due to perforation of the vermiform appendix; that chronic enlargement of the testis was often caused by syphilis and was curable by mercury given internally. Dupuytren's pill for syphilis, containing bichloride of mercury, is still advised in France as an addition to the treatment by galyl. He wrote copiously on fractures of the long bones, and greatly improved their treatment, especially those of the femoral neck and lower end of the fibula. His treatment of artificial anus survived until recent years. He was the first surgeon to excise a carcinomatous cervix uteri and the first to describe congenital dislocation of the hip. Dupuytren was specially interested in the treatment of both lacrymal fistula and cataract; the former he improved, but he adopted the operation of "couching" with his special needle as the routine operation for cataract. In this he was certainly wrong, and sinned against the light of his time in more than one sense.

With regard to the surgery of the blood-vessels Dupuytren records many interesting and bold operations, following in part those of Abernethy and Cooper. He devised a whole series of surgical instruments, and did invaluable service in reforming the treatment of urethral stricture by introducing the gradual dilatation by flexible bougies.

Of all his work in surgery, perhaps the most original was that on the contraction of the palmar fascia, which has immortalised his name. Whether Sir Astley Cooper first suggested the right explanation of this condition (as asserted by one French writer) or not is quite immaterial. But it may remind us of the fact that Dupuytren, though he never visited England, was a friend of Cooper's, and that his writings are full of references to his works and those of other English surgeons. He had a special admiration for Sir William Lawrence's writings, and to English visitors in Paris he opened his mind more fully than to any others.

TWO POINTS CONCERNING FRENCH HOSPITALS.

The Duke of Wellington repeatedly affirmed (about the year 1840) in words that deserve to be recalled: "It is an old and very strong conviction of mine that in matters of peace *we can do nothing except in coöperation with France.*" In medicine and surgery the two nations have learnt much from each other; a closer understanding must result in further gain. I will allude to two points only brought out by the study of Dupuytren's life and time.

The first is the system of election to hospital appointments. From the period of the Revolution to the present one the French have elected their hospital surgeons by public competitive examination—the Concours. This examination is, exactly like that for the Final Fellowship, held in public. In England until quite recently the selection at some hospitals was made through canvassing the votes of a heterogeneous mass of governors! It would need the caustic pen of a Charles Dickens to describe the iniquity, the expense, the absurdity of such a system. Fortunately it is now extinct, or very nearly so. The present method of selection varies somewhat at different hospitals. It has many defects, but the best candidates are elected by it in a moderate proportion of cases. Could we improve matters by adopting the Concours? Probably we should, but the change is not likely to be made.

The other point is of far greater importance. In France for over a hundred years the hospitals have derived much of their income from a tax (8 to 10 per cent.) on the gross receipts of all theatres, music-halls, and other places of entertainment. The year before the war, in Paris the income from this source was no less than £250,000. In London a similar tax would produce an annual revenue of at least £500,000. How long will it take us to follow the admirable example set in this respect by the French? The flow of private benevolence need not be checked by it, nor endowments, nor help given by Government to Universities or medical colleges. We want the money badly. The hospitals, apart from their maintenance, need more convalescent homes; they ought to be enabled to pay their nursing staffs in a more adequate manner. In Paris all who work in the hospitals or who teach medical students, from the internes to the professors, receive some salary; many of the teachers are well paid. In London medical education, research work, and clinical teaching are alike hampered and starved through want of funds and pecuniary encouragement. The teachers of science, such as those of anatomy, physiology, bacteriology, &c., may perhaps earn a living, but never a sufficient recompense. The clinical teachers, who train our students in the most important part of their career, with rare exceptions receive no pay at all. Again, in Paris every year many valuable money prizes are given for original research and essays in medicine and surgery. In London, the richest capital in the world, there is only one such reward annually given for original work on a surgical subject, the Jacksonian prize of the College of Surgeons. Its net value is £13 or £14. The drawings alone which accompany the essay may well have cost the successful competitor £100.

Surely we have much yet to learn from France.

CONCLUSION.

In the first part of this lecture I trust that a real addition to our knowledge of the pathology and treatment of Dupuytren's contraction has been established. To devise and introduce some improvement, to render more easy and effectual our treatment of a disabling deformity, is in itself a source of personal pleasure. That pleasure is much enhanced by the knowledge that a tribute has at the same time been paid from this theatre to the memory of the distinguished French surgeon whose life and works we have been considering, and to the great nation with whom we are henceforth indissolubly allied.

ABSTRACT OF

An Address

ON THE

HUNTERIAN TRADITION IN CARDIAC RESEARCH.

Being the Eighty-ninth Annual Oration delivered before the Hunterian Society on Feb. 14th, 1917.

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[AFTER giving a sketch of John Hunter's personal relations with his colleagues at St. Bartholomew's Hospital, the lecturer continued:—]

Hunter's Conception of the Heart and its Modern Development.

I must turn now from the association of John Hunter with some of the eminent men of the past to consider the influence of his methods in the present and their promise for the future. And my reasons for selecting cardiac research from which to illustrate this are twofold. It is a branch of medicine which in the last few years has shown active progress, and that progress has been achieved by exact observation and the comparative method. Everyone realises what an essential part experiment played in Hunter's work, but less has been said of the liberal use he made of comparative anatomy and physiology. Yet the arrangement of his museum shows that this was really the dominant idea with him. And comparative anatomy and physiology lie at the root of the advances in cardiac research.

I regard as Hunter's two great contributions to cardiology the classification of animals based on the arrangement of the chambers of the heart and the generalisation that the situation of the heart depends on the situation of the organs of respiration, which it always follows. The latter point is of great value, but not germane to our present topic. It is admirably illustrated by the descent of the heart from the neck in the gill-breathing embryo into the thorax of the lung-breathing adult, a descent which explains the curious course of the recurrent laryngeal nerves. As to his classification of animals according to the arrangement of the heart, Sir Richard Owen considered it superior to that of Linnæus, and spoke thus of Hunter as a comparative anatomist, "He merits a higher and altogether different station than has been awarded him by Cuvier. It appears to me that he marks a new epoch in its history." This is praise indeed. Hunter's conception of the heart was that of a tube which, as we ascend the animal scale, becomes increasingly complex in the arrangement of its chambers, the insects having but one (monocoilia), the fishes two (dicoilia), the amphibia three (tricoilia), and the birds and mammals four (tetracoilia).

It is now more than 25 years since at Cambridge I came under the influence and teaching of Gaskell, surely one of the most original minds that ever adorned British physiology. On the experimental and comparative side his work on the heart and sympathetic nervous system laid the foundation for all our recent advances. And while he was working in the laboratory, a busy practitioner in a Northern town was carefully observing patients and recording year after year the vagaries of their pulses and the reaction of their hearts to the stress and strain of life. I mean, of course, Sir James Mackenzie. Starting from two entirely different standpoints, the observations of these two men converged at last and led to a reconstruction of our ideas of cardiac pathology, which is full of promise for the future. Without recounting the steps by which the knowledge was obtained, I may summarise the development of the Hunterian conception of the heart as follows.

If we look at the vascular area of a chick early on the second day of incubation we see the heart is then a simple tube, slightly bent on itself. Pulsations are passing slowly from the venous to the arterial end, and this rhythm begins long before there is any differentiation into muscular and nervous elements. Here is the primitive cardiac tube in actual existence, and not as a mere concept. By the end of that day the heart has become S-shaped, the form found in the fish throughout life, and rudiments of the auricular appendix have appeared. The next day the curvature of the tube has increased, and the demarcation of its several cavities can be made out. In fact, the embryo rapidly repeats events in the evolution of the heart which we believe originally occupied many ages. In the process of evolution the primitive tissue became reduced in amount but more concentrated in position, while more highly differentiated muscle developed in the lateral expansions of the tube to increase the content of the heart. This muscle was specialised for rapidity of contraction. Incidentally I may point out that it is a necessary consequence of a lateral expansion of a tube that it should contract more rapidly than the central portions if there is to be a coördinated wave at all.

Gaskell concluded that the heart-beat normally began at the sinus venosus in a heart such as the tortoise's because the muscle here was of a more embryonic character, while the ventricular muscle was more highly differentiated. But by warming the ventricular end and cooling the sinus he was able to produce a series of reversed beats. He showed that the normal wave of contraction would pass by any channel as long as a sufficiently wide bridge of muscle were left for it; the contraction was a property of the cardiac muscle and not of any ganglion cells. If the bridge was made too narrow by cutting too deeply into the muscles every wave could not pass, though perhaps alternate ones would; he had produced a partial heart-block. An adequate strand of conducting tissue is, therefore, essential to the due propagation of the wave of contraction along the cardiac tube. Such a strand was found to exist in the mammalian heart by Stanley Kent in 1893. In our characteristic British way we ignored this discovery until it was rediscovered by a German, His; then we accepted it, and the strand is now known as the auriculo-ventricular bundle. It is composed of fine, pale, branching fibres, which in some respects resemble embryonic muscle fibres. But if such fibres are the conducting strand along which the wave passes, we should expect to find similar fibres at the junction of the great veins with the heart, since this is where the wave starts, and Keith and Flack found them there, in close connexion with the vagus and sympathetic nerves. They called this the sino-auricular node. Here the dominating rhythm of the heart normally arises, and here it may be readily modified by extrinsic nerves. Between the sino-auricular node and the auriculo-ventricular bundle there appears to be none of the primitive cardiac tube left. This extreme reduction of the primitive tissue is typical of the mammalian heart, and with this reduction the heart has become less automatic in its action and more in subjection to the central nervous system.

Like the chick's heart on the second day, the remains of the primitive cardiac tube appear to be endowed with the properties of both muscle and nerve. In some lower types, such as *Limulus*, the king-crab, the nervous and muscular elements are anatomically separate. In the mammal we can effect this separation by chloral, which poisons the nervous elements, so that the heart muscle will now behave like ordinary striped muscle.

Just as Gaskell was able to make the tortoise's heart start beating at an abnormal spot, so we find that extra beats may start in the human heart from an abnormal position. Just as he was able to produce heart-block by interference with the conducting bridge, so we may see heart-block produced in man by disease of the auriculo-ventricular bundle. The beats may also be initiated by the irritation of extrinsic nerves, acting on the sino-auricular node. It is the special value of Mackenzie's work that it has enabled us to classify the principal forms of irregular heart met with clinically in terms of disturbance of the primitive cardiac tube.

I propose now briefly to consider some of the recent additions to our knowledge under the three heads of the irregular heart, the dilated heart, and the irritable heart.

The Irregular Heart.

Five types of irregularity are now recognised of very different significance. It is important to realise that they are not all of serious portent. I shall place them in the order of increasing gravity.

1. *Sinus irregularity.*—This Mackenzie calls the youthful type of irregularity, and it is compatible with a perfectly healthy heart. The rhythm is initiated at the normal place, at the sino-auricular "pacemaker," but not at the normal

time. One the wave of contraction is started, it is propagated quite normally. The duration of systole remains constant, but the diastolic intervals vary. As the pulse quickens the diastolic intervals are encroached upon, so that this type of irregularity disappears during fever or exertion. It is due to vagal irritation, as is shown by the way it may be induced by swallowing or by hurried respirations—two acts which stimulate the sensory branches of the vagus. Sinus irregularity can be recognised by the fact that though the pulse-rate is varying, usually with respiration, the beats are equal in strength, while on auscultation the interval between the first and second sounds is constant. It does not cause any inconvenience, and its recognition is important simply that undue significance may not be attached to it.

2. *Extrasystoles.*—When a stimulus is initiated at some other part of the heart than the sino-auricular node a premature contraction will occur, and as the heart has not had time to accumulate enough contractile material, this beat will be smaller than normal, and, for a similar reason, it will be followed by a longer pause. This disturbance of rhythm constitutes the extrasystole, and usually involves the ventricle alone, though it may occasionally implicate the auricle. The patient is conscious of the long pause and of the thud which follows it, and it can be detected without instrumental aid by the two beats in rapid succession followed by the pause. The electrocardiogram will show that the extra beat has started from some situation other than the primitive cardiac tube, and for that reason it has been called an "ectopic beat." Mackenzie calls it the adult type of irregularity, and says that hardly anyone over 60 fails to show it. It is often induced by gastric disturbances and by drugs. In itself it does not give any cause for anxiety. Attention to the digestion, and moderation in the use of tea and tobacco will diminish its occurrence, or, at any rate, diminish the patient's consciousness of it, which is all that is necessary. Paroxysmal tachycardia is apparently due to auricular extrasystoles. Transitional between this and the next type of irregularity to be described is "auricular flutter," in which the auricle may maintain a rate of more than 300 a minute. But too little is known of this rare type to make its further discussion profitable here.

3. *Auricular fibrillation.*—The explanation of this type of irregularity we owe to Thomas Lewis. It is seen in the later stages of mitral stenosis. The typical crescendo presystolic murmur may suddenly vanish and be replaced by a diastolic rumble, diminuendo in character. At the same time the pulse will become highly irregular, and usually very frequent. The veins in the neck become distended, and the patient becomes extremely distressed with shortness of breath and cyanosis. The electrocardiogram shows that the proper auricular contraction is replaced by incessant fibrillary tremors. Mitral stenosis leads to more and more strain upon the left auricle because of the difficulty it offers to its emptying its load into the left ventricle. For a time this is met by hypertrophy of the auricle, but a stage is reached when the auricle becomes so overloaded that it can no longer contract properly and only fibrillary tremors can take place. The presystolic murmur must vanish since it is produced by auricular contraction; the diastolic murmur is due to passive pouring of blood into the ventricle during diastole. As this flow of blood will diminish as the ventricle fills, the diastolic rumble produced will be diminuendo in character. The ventricular output suffers in two ways. Firstly, the auriculo-ventricular bundle is stimulated in a most irregular manner by the fibrillations of the auricle, and its contractions will be rapid because of the number of stimuli reaching it. Secondly, the output of the ventricle will be interfered with because the ventricle now lacks one of the most potent factors in the production of its systole—namely, the sudden squirting of blood into it by the short, sharp auricular contraction. As we shall see later, this stretching of the ventricular muscle by driving blood from the auricle into the ventricle is a powerful stimulus to adequate ventricular contraction. Thus the ventricle is now urged to rapid and ineffective contractions, placing the heart at a serious mechanical disadvantage, which sooner or later leads to its breakdown. It is, then, not the primitive cardiac tube that is at fault, but the thin sheet of more differentiated muscle which lies between the two remaining portions of this tube. This is the form of irregularity for which digitalis is particularly appropriate, for not only has it a tonic action on the distended auricular muscle, but it also lowers the conductivity of the auriculo-ventricular bundle, enabling it to ignore a large number of the ineffective stimuli reaching it from the fibrillating auricle. It is clear that auricular fibrillation is a more serious form of irregularity than those we have previously considered. It connotes a structural alteration in the heart, which plays an important part in its ultimate breakdown.

4. *Heart-block.*—This condition has been known since the middle of last century as Stokes-Adams disease, but its significance and the method of its production have only been appreciated during the last decade. The characteristic features are the infrequent ventricular contractions, while the auricular contractions remain normal, and the attacks of vertigo, syncope, and epileptiform convulsions. Various anatomical lesions have been found, but the factor common to them all is damage to the auriculo-ventricular bundle, so that the passage of the wave from auricle to ventricle is interfered with. It is the clinical equivalent of the heart-block produced by Gaskell in the tortoise's heart by cutting the auricular muscle until the bridge is too narrow for all the waves starting in the auricle to be propagated into the ventricle. Perhaps two out of three waves may pass or only alternate ones. The block may become complete, so that the ventricle is dependent on its own rhythmical power for any contractions at all. Sometimes the block is caused by the toxins of disease such as rheumatism, sometimes by drugs such as digitalis, where conductivity is impaired. But more usually there is a fibrosis of the bundle or a gumma pressing on it. So that the condition is serious and tends to get progressively worse in spite of treatment. It is therefore a serious form of irregularity, since it is due to interference with the primitive cardiac tube at its narrowest, and therefore its most vulnerable, point. The syncope and convulsions are the direct result of the cerebral anæmia caused by the slow ventricular beats. When the pulse-rate falls below 30 in the minute there can hardly be an adequate supply of blood reaching the brain.

5. *The alternating pulse.*—Here the irregularity is not one of time but of force. There is a regular succession of small and large beats. It is due to a failure of contractility, and the probable explanation is that with the smaller beats not all the fibres contract. This means that some of the fibres are so exhausted that they only beat half as frequently as the rest of the heart. The condition usually occurs in elderly people with high pressure, and it may only be brought out by exertion. There must be a great impairment of the reserve force of the heart before it comes on, and according to Davenport Windle the importance of recognising this altered rhythm is that it is a danger signal which appears before the symptoms of heart failure are manifest. Either dropsy or angina is imminent, and in none of Windle's cases was life prolonged more than 17 months after alternation of the pulse had been observed.

In the briefest possible manner I have described the cardinal features of the recognised types of irregularity, some of which may coexist, producing most confusing conditions. It is sufficient for my purpose if I have made clear the relations of these irregularities to the primitive cardiac tube. In sinus irregularity the tube is healthy, but is stimulated irregularly by the vagus; in extrasystoles there is some irritable focus outside the remains of the tube; in auricular fibrillation the more differentiated muscle between the two portions of the primitive tube fails to act properly; in heart-block there is failure of conductivity through the narrowest part of the tube, while in the alternating pulse there is failure of contractility in the specialised lateral expansions of the tube. Stated in this order we have a series passing from a harmless irregularity to one which is inconsistent with life for much more than a year.

The Dilated Heart.

Recent work has thrown important light on the nature of cardiac dilatation. For some years we have known that the heart is very tolerant of interference with the systolic output, while very intolerant of interference with its diastolic filling. Thus, if a ligature be placed around the aorta of an animal and very slowly tightened, the lumen may be reduced to one-third of its normal calibre before the output of blood from the heart is diminished. On the other hand, if an aneurysm bursts into the pericardial sac a man may die suddenly although the sac contains only 10–12 oz. of blood.

No one dies from so small a loss of blood; it is the interference with the diastolic filling that stops the heart. Similarly when people are crushed to death in a crowd they die from syncope and not from asphyxia. The fixation of the chest interferes with the return of the blood from the great veins, diastolic filling is interfered with and the heart stops. In 1908 I suggested that this interference was so deadly because it deprived the heart walls of that tension which is so powerful a stimulus to contraction. The recent work has confirmed this suggestion and amplified it in a striking manner.

We owe to A. V. Hill the conclusive demonstration that the energy developed by a muscle is directly proportional to its previous stretching. Starling and his school applied this generalisation to cardiac muscle, and showed that if the heart were given more work to do, for instance, by a rise of peripheral resistance, it would dilate until the diastolic stretching thus produced developed sufficient energy to enable the heart to do the increased work. So that dilatation in its inception is a compensatory measure. This accounts for that transitory dilatation which is often observed but has hitherto been unexplained. I have seen a patient's apex beat move an inch outwards in the course of a minute or so, and then return to its normal position; this has usually been in a weakly person soon after undertaking some slight exertion. The enfeebled heart required this extra stretching to develop sufficient energy. But if the maximum elongation that can be obtained is not enough to develop the required energy the heart must remain dilated. This is only likely to occur if the muscular nutrition is impaired. If the myocardium is diseased its contractility is diminished and the temporary physiological dilatation passes into a permanent pathological dilatation. Now we can understand why interference with the diastolic filling is so deadly; it prevents that stretching of the muscle which is so essential to the development of its energy. A new light is thrown on the mechanism of the filling of the auricles, the filling and the emptying of the ventricles. If the auricle is not contracting with sufficient energy a rise of venous pressure will enable the blood entering the heart to stretch the auricle more thoroughly and thus to stimulate it to increased contraction. We speak of this rise of venous pressure as a "back pressure," as if it were a consequence of failing heart, but we have not realised that it is developed as an attempt to combat that failure. This rise of venous pressure has its drawbacks. Venous pressure tells directly on the thin-walled capillaries, unlike arterial pressure, which is shut off from the capillaries by the constriction of the arterioles. A rise of pressure in these thin-walled capillaries allows transudation of fluid to occur into the surrounding tissues; hence dropsy, albuminuria, and congested liver. Saline aperients help to restore compensation by depleting these overloaded capillaries while permitting the rise of venous pressure to exert its stimulating effect on the heart.

In the same way the auricular contraction is made as short as possible. For seven-eighths of the cardiac cycle the auricle is resting, or rather it is being stretched by the blood pouring into it from the veins. This enables it, in spite of the relative thinness of its musculature, to develop enough energy to squirt blood forcibly during the remaining one-eighth of the cycle into the ventricle. This sudden distension of the ventricle acts as a powerful stimulus, and what the loss of this stimulus means when fibrillation of the auricles occurs is seen in the consequent profound disturbance of the ventricular output.

We can also understand now why the blood pressure often rises when the heart is failing. It is sometimes a surprise to find a blood pressure of 200 mm. or even more when the heart is beating feebly and fast. It has often been assumed that the heart is failing behind the high pressure, but really the pressure is rising because the heart is failing. If the output of the ventricle is diminished the arterioles constrict in order to diminish the size of the vascular bed to be filled. But this in itself would only raise a falling blood pressure back to normal. The subsequent rise is in order to stretch the ventricular muscle, and thus to stimulate it to renewed effort. When a failing heart is accompanied by a low pressure, as it is in acute toxæmic conditions, it is because the vaso-motor system also is poisoned and cannot respond to the demands of the medulla. Death is then imminent.

This rise of arterial pressure has another advantage, as I pointed out some years ago, and as has now been experimentally confirmed by Starling. The coronary arteries have no vaso-constrictor nerves. A rise of arterial pressure, therefore, drives more blood into the coronary arteries, and thereby increases the blood-supply to the heart muscle at the moment when more work is demanded of it.

The effect of a cardiac tonic is twofold; by slowing the heart it allows of its proper filling, and therefore of its adequate stretching, but it also enables the muscle to contract with less initial stretching, with the attendant risks of over-stretching. This avoids the need of a rise of venous pressure with its accompanying drawbacks. One is impressed afresh by this new work with the extraordinary adaptation of the heart to the mechanical problems it has to face.

The Irritable Heart.

The final topic with which I wish to deal, and that quite briefly, is the irritable heart of soldiers, with which we have become so familar of late.

A soldier may begin to find himself short of breath on any exertion, suffering from præcordial pain and palpitations. He is easily exhausted and has to fall out on a march. If he lies down he soon feels all right, except perhaps for some indigestion, even when kept at rest in bed. On getting up again he feels dizzy and faint. He looks depressed; his face is pinched and drawn. Vasomotor instability is proclaimed by the cold and rather blue extremities, which may quickly become cold and clammy. There may be tremors of the hands. He is labelled D.A.H. (disordered action of the heart) and consequently takes a gloomy view of his future, which in itself militates against his recovery. Examination of the heart does not reveal anything definite; there is no enlargement, but there may be various murmurs, which tend to pass away with rest. Many of the murmurs I should formerly have unhesitatingly pronounced to be organic, but the way in which they pass away and reappear shows that they cannot be so. The pulse is always too fast in the upright position and may remain too rapid even when in bed. But there are no signs of failing compensation.

The condition is an intractable one. The patient accepts the diagnosis as evidence that he has definite heart disease. Parkinson found that of 39 cases he sent home only 4 had returned to duty feeling quite well, at the end of an average period of seven months (minimum 4, maximum 14 months); 22 of them were no better or were still in hospital. And this accords with the experience of most of us.

This form of the disease has been commoner than the definite attacks of paroxysmal tachycardia, which had often been noticed in young recruits. The condition has long been recognised, but cannot be said to have been fully explained even yet. It is prevalent among the enemy. Goldscheider says: "The war has brought into unflattering prominence the ignorance of the medical profession of a group of symptoms with which a very large proportion of the German Army have been invalided." In 1864 it was referred to the type of accoutrements worn, in 1876 to the "setting-up drill." Both of these have been abandoned, but the disease remains. Three other explanations have been offered more recently: that it is due to a poisoned heart, that it is purely neurasthenic, and that it is due to some perversion of the internal secretions.

Sir James Mackenzie states that in his opinion 90 per cent. are not primarily heart cases, and that the principles of treatment are widely different from those for heart failure. He considers they are generally due to the effect of strain during the time that the heart is poisoned by some intercurrent infection. If this is so, it is curious that the signs and symptoms do not approximate to those of myocardial failure, which may be induced under similar conditions. But there is support to the theory in the frequency with which gastro-intestinal disturbances have preceded the heart symptoms. Da Costa noticed in the American Civil War that diarrhœa was a common precursor. This accords with my experience in the South African War. In this war we have had large numbers returned from Salonica who began to suffer with their hearts in this way after malaria, and various other infections have also been held responsible. I have not noticed a liability to irritable heart after epidemic nephritis, but this is probably due to the prolonged rest in hospital which that disease entails. Earlier in the war instances occurred where soldiers had deliberately upset their hearts by eating cordite, but this has apparently been checked by disciplinary measures.

Tobacco may be a factor in some cases, but non-smokers have suffered, and I have seen its prohibition fail to produce any improvement.

The second view is that the condition is a purely nervous one. Some years ago I was accustomed to point out, chiefly as the result of my experience in the South African War, that whereas traumatic neurasthenia was common in civil life—for instance, after a railway accident—it was comparatively rare in war. No one would venture to make such a statement to-day, for our experience in this war has singularly falsified it. Prolonged strain and high explosives have altered all that, and "shell shock" has passed into ordinary parlance. Many such cases show cardiac symptoms exactly like those of soldier's heart.

The strain of warfare may cause a breakdown in the weakest spot, which may be the vascular system. Rodolf believes that the majority of the patients have shown vasomotor instability for years. That the sufferers from soldier's heart are neurasthenic I am convinced, but I am not convinced that the cardiac condition is due to neurasthenia. I have known some of these men before the war, and they certainly were not neurasthenic then. To refer it all to the nervous system without further explanation may be a mere cloak for ignorance, and does not tend to the satisfactory treatment of men who may be suffering from a physical incapacity, the intangible nature of which in itself increases the liability to neurasthenia.

The nervous theory is not incompatible with the internal secretory theory. Both the suprarenals and the thyroid have been held responsible. Adrenalin is one of the defensive mechanisms of the body. It is the hormone to the sympathetic nervous system, and many different stimuli lead to hurrying up of this secretion into the circulation to assist in rapid sympathetic response. But with frequent repetition of the stimuli exhaustion of the secretion may be induced with consequent loss of tone of the whole sympathetic nervous system. Previous infective conditions would hasten the exhaustion, for we know, indeed, that some diseases, such as diphtheria, have a marked effect in diminishing the amount of chromaffin material in the suprarenals.

Other observers consider that the symptoms are due to hyperthyroidism. In support of this they point to the influence of shock and fright in inducing Graves's disease, and to the existence of tremors and tachycardia with other cardiac symptoms both in Graves's disease and in the condition I am discussing. Moreover, they claim that the thyroid is often enlarged in "soldier's heart," as, indeed, I have sometimes found to be the case, and that treatment of this gland by X rays markedly benefits the patient, of which I am not so confident. Still, the theory is one that demands consideration.

In most cases one can find no definite enlargement of the thyroid and the hypothesis of a loss of balance between the internal secretions has been advanced; the suprarenal being in defect, the thyroid in excess. It is a plausible idea, but such assertions are more easy to make than to prove. Routine examinations of the blood to determine the amount of adrenalin and of sugar in the circulation would afford a basis of more value than any speculations.

As the thyroid gland is believed to play a part in the fixation of salts in the tissues, it is interesting to learn that Thomas Lewis and his fellow-workers have found a deficiency of salts in the circulation of these patients when they are short of breath. All acids, including CO_2, stimulate the respiratory centre, but if we add CO_2 to blood it only produces one-quarter of the change in reaction which occurs in a corresponding quantity of salt solution. This is because the sodium bicarbonate, the sodium acid phosphate, and the protein partly fix the acid, so that it loses its chemical freedom. They act as buffer salts, easing the shock of the reaction caused by the addition of acid or alkali. When these buffer salts are diminished any exertion produces excessive fatigue, giddiness, palpitation, and a high rate of pulse and respiration. They found that after the addition *in vitro* of sodium acid phosphate to the blood of such patients they obtained a dissociation curve more nearly approaching the normal. This suggests that an alteration in salt metabolism occurs in soldier's heart, and it is quite possible that such alteration is due to a disturbance of the balance between the internal secretions of the suprarenal and of the thyroid.

But if these speculations are to prove fruitful they must be followed by experimental observations; fortunately a number of skilled workers are engaged on the task, and it is to be hoped that the difficult problem will be solved. In the meantime it is important that the patients should not be treated as primarily cardiac and that they should be disabused of the idea that they are suffering from incurable heart disease.

[Dr. Langdon Brown closed his lecture with a brief reference to the Hunterian tradition as a living tradition in present-day military medicine.]

SPECIFICITY IN ANTISEPTICS.

BY KENNETH TAYLOR, M.A., M.D.,

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AFTER two years' observation and study of several thousand cases of chronic infected wounds and their treatment, it seems to me obvious that this branch of medicine has made little progress. In spite of the numerous new or newly modified methods of treatment which have sprung up and been heralded with enthusiasm since the beginning of the war—each one claimed by its champions to be far better than any of the others—it is still impossible to say of any one method or dressing solution, "This is the best way to treat an infected wound." It is probable that this lack of success is due in part at least to the failure to consider the individual characteristics of antiseptics in relation to the types of bacteria in the wound.

This discussion is limited to the consideration of the chronic infection. The treatment of the fresh wound is a different and relatively simple problem. Here the use of antiseptics is really a prophylactic measure, an attempt to kill a small number of bacteria before they have fastened upon the wounded tissues. The bacteria occupy a relatively exposed position among already damaged cells. A single application of a *strong* antiseptic of the protein coagulating class may succeed in killing the bacteria without penetrating beyond the already damaged tissue which rapidly combines with it and checks its action. But this method is not applicable to wounds in which repair has already begun. Here there is no surface layer of dead cells to protect the living from the antiseptic. Consequently only weak solutions can be used, and it becomes vitally necesssry to choose substances having a greater toxic action on bacteria than on human cells. Since bacteria vary widely in their structure and their biology, this substance also may be expected to vary with each species or group of bacteria. It is believed that work along more specific lines may bring about substantial progress in the antiseptic treatment of suppurating wounds. These preliminary investigations are reported for the light which they may throw on the problem.

It is the object of this paper: (1) to emphasise the need of an analytical method in the study of antiseptics; (2) to suggest that specificity in the antiseptic treatment of infected wounds is as important as specificity in the antiseptic treatment of systemic infections, such as malaria, syphilis, &c.; (3) to postulate that suppurating wounds may be treated by specific means directed against one single species or group of bacteria at a time, and that only by such a method of treatment can successful sterilisation be expected; (4) to present certain evidence that this hypothesis may be put to practical application: (*a*) an attempt has been made to determine the relative activity of a few antibacterial substances of varied character against different groups of bacteria by means of a study of their action upon growing cultures; (*b*) the results of a rather extensive observation of the bacterial flora of suppurating wounds are also presented with the view of showing certain variations in that flora under various dressing solutions.

Requirements of Antiseptics.

The failure of antiseptics to accomplish the sterilisation of chronic suppurating wounds, which has surprised so many surgeons, has led to a widespread pessimism as to their utility. This state of mind has resulted in two divergent reactions: first, there has been a great increase in the number of antiseptics used; on the other hand, it has resulted in the development of a "physiological" school of treatment in which all antiseptics are discredited and

replaced by attempts to stimulate the normal reactions of the body against the infective process. As far as dressing solutions are concerned, the "physiological school" has limited itself to solutions of sodium chloride of varying concentrations, utilising only the physical factor of a dressing solution—viz., relative tonicity.

The difficulties in the way of success in the treatment of a chronic suppurating wound are extremely hard to overcome. The irregular structure of the wound, its pockets, the presence of foreign bodies and of fragments of tissue of various sorts which have been separated from their blood-supply make it difficult for the dressing solution to reach the foci of vegetative activity of the bacteria. For example, microscopical section of bone *esquilles*, removed from old-infected fractures in this hospital, has shown foci of bacteria within the fragments of dead bone in 80 per cent. of the cases. The methods of application are inadequate to bring a dressing solution into contact with all parts of a wound. In many cases also the bacteria are lying within the living tissue, especially between the cells and within the lymph spaces below the granulating surfaces. Here it is necessary to take into account the difficulty of the diffusion of the antiseptic through lymph channels and intercellular spaces to reach the bacteria. This diffusion must take place through a medium containing albumin; therefore the diffusion factor of the antiseptic in a menstruum of this sort is of great importance. The dressing solution must be of such a character or of such a dilution that the living cells engaged in the process of repair are not injured or repelled. It must kill or check the growth of different forms of bacteria which offer varying degrees of resistance to the antiseptic.

It is perhaps too much to ask that these multiple requirements should be fulfilled by any one substance, whether it be a saline solution or an antiseptic. It is certain that up to the present time no one solution has been discovered which has effectively combined all the properties which are demanded of a general dressing solution, nor is it likely that such a one will be discovered.

Search for a General Antiseptic.

Undoubtedly a great amount of time has been wasted in the search for an impossible combination. For many years there has been firmly fixed in the minds of laboratory workers and clinicians the idea of "general antiseptics." The term itself has been a stumbling block to progress in the treatment of wounds. It suggests that there are substances which will kill *all* low forms of vegetable life while sparing the far more delicate cells of the animal body. In other lines of medical investigation generalities and empiricism have largely given place to an analytic and specific investigation. But in the case of the treatment of infected wounds we still think and act as though any "general antiseptic" were specific treatment for "the suppurating wound." It is almost as illogical to consider the symptom of fever, no matter what its cause, as an entity and treat it with a general antipyretic as it is to treat an infected wound with a general antiseptic. Until we get rid of the term "general antiseptic," and the conception of empiric treatment which it implies, and substitute some term such as "dressing solution," which carries with it no preconceived ideas, we are not likely to make much progress in the specific treatment of an infected wound.

The "physiological" school falls into the same error. It limits its dressings to solutions of sodium chloride, advocating either the passive treatment with physiological saline or the active treatment with strong salt solutions. The former method is purely a negative one; the latter can hardly be termed "physiological." Its proper place is among the antiseptic methods.[1] Each method is applied without regard to the varied character or flora of the wound.

In the treatment of the majority of chronic infected wounds the main problem lies in destroying as far as possible the bacterial flora, consisting usually of several different groups in symbiotic or perhaps in antagonistic relationship. The different groups are sensitive in different degrees to the action of many antibacterial substances. It is possible that by the utilisation of this fact they may be *combated separately by the solution to which they are most sensitive*, and in this way a definite reduction of the number of organisms effected. Further work may show whether there are certain antagonistic relationships between different bacteria in a wound with which it is inadvisable to interfere.

[1] Mechanism of Saline Dressings, Brit. Med. Jour., Sept. 2nd, 1916.

Experimental Evidence.

Dressing solutions designed to combat infection may be roughly divided into four classes: (1) bland solutions without action on proteins; (2) protein coagulators; (3) protein solvents; and (4) solutions of substances exerting on proteins a *toxic* action, which, so far as can be determined, is not primarily due to either the coagulation or solution of the protein bodies. By far the most profitable field of investigation appears to lie in this class. Here a differential action on the bacterial proteins may be expected with certain substances and specific properties utilised. An attempt has been made to investigate the bactericidal properties of a few organic acids, alkaloids, or other compounds which may be included in this group of antiseptics.

It is very difficult, with any substance, to establish the actual point of concentration which will inhibit the growth of an organism. Incomplete mixture of the medium and the antiseptic may give cause for erroneous results. Variance in the number of organisms implanted may also lead to confusion. A heavy inoculation may alter the constitution of the medium or fix a certain proportion of the antiseptic. Variations in aeration of the medium may give false results in experiments with anaerobes. The inhibition point of a particular substance varies considerably in the case of a particular organism according to the age, strain, or vegetative activity of the culture used. As far as possible it is advisable to use an actively growing young culture for all experiments with antiseptics.

The technique followed by Miss Mary Davies, who conducted the experiments in this laboratory, was as follows:—

A series of tubes was filled with equal measured amounts of a fluid medium suitable for the organism. Since the determination of the relative rather than the actual bactericidal power was desired, the simple broth media were generally used. The antiseptic to be tested was then added in decreasing quantities and the two substances thoroughly mixed in the tube. All the tubes were heavily inoculated with the same amount of an actively growing culture of the organism against which the antiseptic was being tested. They were then immediately incubated. The concentration of the antiseptic was computed in the last tube to show growth and in the first to show complete inhibition. A point midway between these two was taken as the actual concentration required to inhibit growth in the medium used.

Organic Acids.

The bactericidal effects of two groups of protein toxins were studied. The first of these groups contained what may be called the natural antiseptics—i.e., those substances often produced during the growth of an organism, an accumulation of which in the medium ultimately inhibits its vegetative activity. It is well known that the growth of most bacteria *in vitro* is self-limited. This limit is reached by a process of auto-intoxication. Among the substances acting in this manner some of the most important are the organic acids produced from the medium in which the bacteria are growing. Certain of these organic acids most commonly present in the filtrate from old cultures have therefore been tested, together with a few other organic acids, in an effort to determine the actual concentration required to check the growth of various organisms. These results are shown in Table I., which also contains the inorganic acids hydrochloric and nitric for comparison.

TABLE I.—*Approximate Concentration of Acids Required to Inhibit Growth.*

Acid.	*Streptococcus pyogenes.*	*Staphylococcus aureus.*	*B. pyocyaneus.*	*B. aerogenes capsulatus.*
Hydrochloric	0·21	0·22	0·22	0·11
Nitric	0·16	0·23	0·22	0·11
Acetic	0·31	*0·29*	*0·08*	0·11
Butyric... ...	0·15	0·24	0·13	0·11
Propionic ...	*0·11*	*0·12*	*0·08*	0·19
Tartaric... ...	*0·29*	0·16	*0·42*	*0·07*
Malic	0·21	0·16	0·12	*0·04*
Tannic	0·19	0·29	*0·50*	*0·50*

Several points appearing in this table are of interest. It may be noted that the two inorganic acids showed almost the same degree of activity in checking the growth of each organism. This similarity of action suggests that it is merely the quantity and not the quality of these acids which is of importance.

The organic acids, on the other hand, differed greatly among themselves in their effect on the growth of the various

organisms: thus, acetic acid actively inhibited the growth of the *B. pyocyaneus*, was slightly less active against the gas bacillus and much less so against the cocci. Propionic acid showed a similar action in regard to the *B. pyocyaneus*, was much less active against the gas bacillus, and more active against streptococcus. Butyric acid was less active against pyocyaneus, about equally so against the gas bacillus and more active against streptococcus, though not against staphylococcus. Tartaric acid showed very little action against pyocyaneus, was very active against the gas bacillus, but had only slight effect on streptococcus. Malic acid resembled tartaric in its action on the cocci, but was fairly active against the *B. pyocyaneus* and most active of all against the gas bacillus. Tannic acid showed only a slight activity against the cocci, and appeared to have no activity against the *B. pyocyaneus* and the gas bacillus.

It may be concluded, therefore, that at least among the common organic acids there is a great variation or specificity in their activity toward different organisms. Further work may show to what extent this specificity is inherent in the particular products of each bacterium's growth.

Antiseptics.

Only a small group of substances of a recognised antiseptic value was examined. It comprised carbolic acid, cresol, thymol, Dakin's solution, quinine hydrochloride, ammonium and sodium fluorides, salicylic acid and sodium chloride.

TABLE II.—*Approximate Concentrations of Certain Antiseptics Required to Inhibit Growth.*

Antiseptic.	*Streptococcus pyogenes.*	*Staphylococcus aureus.*	*B. pyocyaneus.*	*B. aerogenes capsulatus.*
Carbolic acid	0·07	0·26	0·10	Variation 0·65 to 2·00
Cresol	0·06	0·09	0·06	0·26
Thymol	0·08	0·16	0·5 +	0·26
Dakin's solution*	3·42	17·60	34·34	Variation 28·62 to 50·00
Quinine hydrochloride ...	0·15	0·41	0·77	Variation 0·07 to 0·19
Ammonium fluoride ...	0·30	0·24	0·24	0·35
Sodium fluoride	0·17	0·08	0·17	0·30
Salicylic acid	0·47+	0·28	0·47+	0·08
Sodium chloride	5·51	14·28+	14·60+	4·00

* The figures represent percentages of the solution. Since it is a complex solution it is difficult to determine the actual bactericidal value of each constituent.

Here again great variation was found in the activity of these substances on different organisms. Carbolic and cresol proved more active against the streptococcus than against the staphylococcus, and showed very little activity against the gas bacillus. Thymol showed a fair degree of activity against the streptococcus, was less active against the staphylococcus, still less so against the gas bacillus, and showed practically no action upon pyocyaneus. Dakin's solution showed a moderate activity against the staphylococcus, was nearly inert against the *B. pyocyaneus* and the gas bacillus, but was more active against the streptococcus. Quinine showed its greatest activity against the gas bacillus, was fairly active against the streptococcus, but showed very little action upon the staphylococcus and still less upon the *B. pyocyaneus*. Sodium fluoride was more active than ammonium fluoride throughout. Both showed themselves active against the gas bacillus, but less effective against the other three organisms. Salicylic acid showed very little activity against streptococcus, pyocyaneus, or staphylococcus, but was fairly active against the gas bacillus. The concentration of sodium chloride required to inhibit the growth of these four organisms also varied considerably. About 4 per cent. was required to prevent the growth of the gas bacillus, a slightly higher concentration to inhibit streptococcus, and 14 per cent. failed to inhibit the growth of the other two organisms.

Here again is plainly manifested the great variation in the activity of some of our "general antiseptics" toward the common bacteria of infected wounds. *Bactericidal values are relatively specific and not general.*

Clinical Evidence.

In order to study the effects of some of these dressing solutions on the flora of chronic suppurating wounds a series of 165 cases was divided into approximately equal numbers, and each group treated with one solution for a period of five weeks. Practically all these cases fell into the class of chronic infection. Most were complicated with bone necrosis. The first examination was made, on an average, about two weeks after injury. The wounds were examined by Dr. B. H. Buxton of this laboratory at intervals of about seven days, and the aerobic and anaerobic flora recorded. The bacteria were classified by group only, notes being kept of the presence of the *B. aerogenes capsulatus* group, the streptococcus group, the staphylococcus group, the *B. pyocyaneus* and diphtheroid bacilli. No attempt was made to classify the varieties of any group.

The percentage incidence of each group at the various periods of examination is given in Table III. This percentage is the average of the whole number of cases treated by all the dressing solutions. About 50 cases which remained on dry dressings throughout the same period showed almost identical percentages for each group as those given in the table.

TABLE III.—*Percentage Incidence of Certain Groups of Organisms in Chronic Suppurating Wounds.*

No. of cases.	Day.	*B. aerogenes capsulatus.*	Streptococci.	Staphylococci.	Pyocyaneus.	Proteus	Diphtheroids.
		per cent.	per cent.	per cent	per cent	per cent	per cent.
163	1st	12	65	66	42	28	23
120	7th	7	67	62	43	23	18
115	14th	6	68	61	44	18	16
86	21st	7	69	59	38	30	17
76	28th	1	68	49	32	39	20
52	35th	0	69	71	35	29	15
612 Exams.	—	5 average	68 average	61 average	39 average	28 average	18 average

There are several points of interest which may be noted from an analysis of Table III. First, the percentage incidence for streptococci, staphylococci, and the *B. proteus* is remarkably constant throughout the period of observation. This is specially marked in the case of streptococci, which does not vary more than 4 per cent. In the case of the gas bacillus, the *B. pyocyaneus*, and the diphtheroid bacilli, there is a slow decline in incidence from the first to the last examination, although in the case of the *B. pyocyaneus* there appears at first to be a slight increase in frequency. The low percentage of the gas bacillus throughout the series is that to be expected in cases which come under observation after the acute stage is past.[2]

A summary of these examinations furnishes a fairly definite standard with which to compare the incidence of these groups of organisms in the cases treated with each dressing solution. The percentages are so constant that any marked variation under any particular treatment becomes readily apparent.

Among these dressings were; (1) Dakin's solution, quinine hydrochloride, 0·5 per cent.; (2) physiological saline; (3) hypertonic saline, 5 per cent.; (4) hypotonic saline; (5) acetic acid, 1 per cent.; (6) bicarbonate of soda, 1 per cent.; (7) cresol, 1/10 per cent.; (8) benzoic acid, 0·5 per cent.; each of the last four being made up with a basis of physiological saline.

No one of these solutions affected the percentage incidence of *all* the groups of organisms listed in Table III. As is perhaps to be expected, physiological saline produced no alteration in the percentage incidence of *any* group. The cases under certain other solutions, however, showed distinct variations in the incidence of one or more groups of organisms. This may be best shown by the charts of each organism and its occurrence among the cases under those solutions as compared with the average percentage. Table IV. shows only those variations from the average which are worthy of comment. The solutions which failed to alter the incidence of an organism are omitted from the table of that group.

In the case of the *B. pyocyaneus* there was an increase in incidence of the organism in the series of wounds dressed by Dakin's solution, quinine hydrochloride and bicarbonate of soda; and a sharp decrease in those dressed by acetic acid. This is in harmony with the clinical observations as well as with the *in vitro* tests. The occurrence of green pus has been frequently observed with the three former solutions,

[2] Observations on the Pathology and Bacteriology of Gas Gangrene. Journal of Pathology and Bacteriology, vol. xx., 1916.

and the use of acetic acid has proved very efficient in eliminating it.[3] The streptococcus group showed a slight decrease with the bicarbonate dressings. No effect appears to have been produced upon the incidence of the organism by the other dressing solutions, with the exception of cresol

TABLE IV.—*Percentage Incidence of B. pyocyaneus, Streptococci, Staphylococci, and B. aerogenes capsulatus (Welch) in Wounds under Various Dressing Solutions compared with the* Average *Incidence of each Organism.*

Day examined.	*B. pyocyaneus.*					Streptococci.				Staphylococci.			*B. aerogenes capsulatus.*		
	Average % all dressings.	Per cent.				Average % all dressings.	Per cent.			Average % all dressings.	Pr. ct.		Average % all dressings.	Pr ct.	
		Dakin cases.	Quinine cases.	Bicarb. cases	Acetic cases.		Hypotonic cases.	Cresol cases.	Bicarb. cases.		Cresol cases.	Dakin cases.		Dry dressings.	Quinine cases.
1	42	33	50	29	35	65	50	82	71	66	73	77	12	2	*20*
7	*43*	80	54	—	*22*	67	71	88	66	62	50	90	*7*	2	*0*
14	*44*	65	40	63	*11*	68	89	88	75	61	63	50	6	3	0
21	*38*	60	37	50	*0*	*69*	88	88	*50*	59	50	35	7	7	0
28	32	60	43	35	0	68	83	86	50	49	43	40	1	4	0
35	35	55	60	—	0	69	86	100	—	71	40	—	—	—	—

and hypotonic saline, where there seems to have been a slight increase in the percentage.

Staphylococcus showed a slight decrease among the cases dressed with Dakin's solution or cresol. It seems to have been little affected by the other dressings.

In the case of the gas bacillus no effect seems to have been produced by any of the dressing solutions with the exception of quinine, where the early disappearance of the organism was strikingly apparent. This result is consistent with earlier experience with this alkaloid, both *in vitro* and in clinical application.[4] With this organism there appeared to be a higher incidence among the cases on dry dressings than among those on any of the dressing solutions.

In spite of the fact, therefore, that our methods of applying antiseptics are still very inadequate and their efficiency as dressing solutions greatly hampered, definite effects on the bacterial flora of the wounds were obtained. Furthermore, these effects *were evidenced in no case upon the bacterial flora in toto but upon one or more species of bacteria at a time*—those for which the dressing was most specific. The failure to produce a greater effect upon the streptococci and staphylococci may have been due to a deeper distribution of these organisms in the tissues, or, the other factors being equal, to the failure to use an antiseptic having an exceptional bactericidal value for those particular groups. Possibly a wider choice of dressing solutions would have shown antiseptics with this property.

Summary.

It has been suggested that the specific method of treatment is applicable to wound infection as well as to systemic infection. Some instances of the variation of antiseptics in their activity against different bacteria *in vitro* have been offered in support of the principle. A large number of bacteriological examinations of wounds under treatment with different solutions has been recorded and instances of the specific action of certain dressing solutions demonstrated.

It is believed that further analytical study of antiseptics will result in the discovery of dressings specific for one or more groups of bacteria. By a successive application of these dressings the organisms present in the wound may be reduced in number or eliminated one variety at a time, and true sterilisation of a suppurating wound accomplished. But first the concept of the "general antiseptic" must go by the board and the search for a cure-all be recognised as unprofitable.

It is a pleasure to express my acknowledgments to Dr. Joseph A. Blake for his advice and criticism, and to Miss Mary Davies and Dr. B H. Buxton for their large share in the technical part of this work.

[3] Treatment of Bacillus Pyocyaneus Infection, Journal of the American Medical Association, Nov. 25th, 1916, vol. lxvii., p. 1598.

[4] Use of Quinine in the Treatment of Experimental Gas Gangrene, THE LANCET, Sept. 4th, 1915, p. 538. Use of Quinine Hydrochloride Solution as a Dressing for Infected Wounds, Brit. Med. Jour., Dec. 25th, 1915.

INTESTINAL PROTOZOA IN SALONIKA WAR AREA.

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(*Report to Medical Research Committee.*)

DURING the months of August, September, and October, 1916, I had the opportunity of examining the stools of 893 cases of diarrhœa and dysentery among the troops of the Salonika war area. Some of these cases had their stools examined two or three times weekly, but the great majority of them not more than once. This work was all part of the routine laboratory examination of stools of patients suffering from diarrhœa or dysentery in three of the general hospitals in this area.

Troops of the Salonika zone of the Eastern Mediterranean have suffered severely from diarrhœa and dysentery. These infections started about the month of May, 1916. They have continued, with slight variations, up to the present. These variations, I think, are mainly due to climatic changes. The great spreaders of diarrhœa and dysenteries are flies. Heat and moisture are necessary for these pests to thrive. In the very hot spells, when everything was dried up, flies became less numerous. On the contrary, during a cold spell, their numbers were markedly diminished, and in these periods there was decidedly less diarrhœa and dysentery.

Bacillary dysentery was the predominant type, but there were quite a number of acute amœbic cases. It is a remarkable thing there were not more, inasmuch as many of the troops, particularly those which had come from Gallipoli and Egypt, were carriers of *Entamœba histolytica*. Microscopical examinations of the stools of these troops in Egypt, Malta, and Salonika continually showed evidence of this.

Table of Findings.

Number of cases examined, 893; number of examinations, 1425.

	Non-pathogenic amœbæ (81).		Pathogenic amœbæ (84).				Flagellate protozoa (217).						Coccidia (18).	
E.F.	*Ent. coli.*	*Ent. coli* cysts.	*Ent. hist.*	*Ent. hist.* cysts.	*Ent. minuta*	*Ent. min.* cysts.	*Lamblia.*	*Lamblia* cysts.	*Tetramitus.*	*Tetram.* cysts.	*Trichomonas.*	*Cercomonas.*	*Cocci. sporul.*	*Cocci. eimeria.*
39	42	39	21	16	29	18	29	44	72	18	45	9	15	3

By E.F. (free amœbæ), we mean amœbæ found in fresh specimens of stools in a resting or precystic stage. This group includes cases in which there was no time for staining, nor was further examination possible for a more complete diagnosis.

Amœbic Dysentery.

As is seen in the above table, *Ent. histolytica* was present in 37 cases. In two of these it was found post mortem. In one the patient died two hours after admittance to hospital. There were six perforations in the large gut and typical lesions of acute amœbic dysentery, from which different scrapings showed large numbers of *Ent. histolytica*. This patient had never been in Egypt or Gallipoli or other infected area, and he did not belong to a division that had been in one, nor was he in camp with any troops known to be infected.

The second case died from sepsis, the result of a severe gunshot wound of the thigh. In the routine post-mortem examination of the organs the gut showed signs of acute amœbic dysentery, and scrapings from it showed *Ent. histolytica*. This patient had also never been in any infected area.

In cases where *Ent. minuta* was found a history of recurrent diarrhœa was usually given. The stools were fæcal with mucus, but seldom was there blood. These patients, one generally found, had been in Gallipoli or in Egypt. As well as the *Ent. minuta*, but included in the table under that category, I found in a few cases a specially small form of amœba with its cyst, a type which had been demonstrated to me in Egypt by Lieutenant-Colonel Wenyon, R.A.M.C., and which has been described by him. Cases

where any type of *Ent. histolytica* was found in the stools were treated in the ordinary way with emetine (1 gr. hypodermically daily for 12 days).

War-time exigencies did not allow of all patients being retained in hospital after their course of treatment was concluded, so that further examination for cysts was impossible. Seven patients, however, in whose stools *Ent. histolytica* cysts were found to persist after their emetine course were further treated with Dale's double iodide of emetine and bismuth. These cases were discussed in THE LANCET of Jan 6th, p. 17. Eight of the *Ent. histolytica* patients had also a bacillary infection. In all but one it was of the Flexner type.

Amœbæ coli, considering how commonly they are found in the gut, may be said to have been present only in a small percentage of cases.

Flagellate Protozoa.

In almost all cases where any of the flagellate protozoa were found there was mucus mixed with fæcal matter; in a very few cases there was blood and mucus only. *Tetramitus mesnili* was the flagellate most commonly present, more often in its flagellate than in its cystic stage. This was due, I think, to the fact that the patient's stool was examined soon after the diarrhœa commenced and before the slowly-forming cysts had time to develop. Repeated examinations of the stools were not possible, but in patients who remained in hospital for some time, and in whom further search could be made, tetramitus cysts were found.

Lamblia intestinalis was a common infection, the cystic form being more often present than the flagellate form. This is due, I think, to this fact, that lamblias attaching themselves by their suckers to the mucous membrane of the duodenum and jejunum are difficult to detach therefrom by the action of drugs. On the other hand, their cysts, which are free and mixed up with the intestinal contents, are readily washed down by aperients. Five of the cases of lamblia infection I was able to examine weekly during three months, and despite all treatment they continue to discharge lamblia cysts up to the present time.

Trichomonas was found in comparatively few cases. This is peculiar, as this parasite is so often present in the stools of people living in tropical and subtropical climates. In one case where I found trichomonas and cercomonas flagellates in the stools of a patient who subsequently died from pyæmia these flagellates were found post mortem, both in scrapings from the large bowel and in the fæcal contents.

Coccidia were found in 18 stools. In this infection mucus was always present in the stools. As a rule, these parasites disappeared within a few days, but in one patient they were found in daily examinations for three weeks.

The lamblia and tetramitus infections were the most difficult to get rid of. Calomel, bismuth, thymol, salol, turpentine, emetine, and Dale's double emetine were amongst the drugs tried without any result. Rectal irrigations with quinine, turpentine, eusol did not lessen the infection.

METHOD OF PLASTER SPLINTING FOR THE TREATMENT OF KNEE-LESIONS.

BY GEORGE DAVIS, M.D., B.S. DURH., M.R.C.S., &c.,
CAPTAIN, R.A.M.C., SURGICAL SPECIALIST TO THE MILITARY HOSPITAL, EASTBOURNE.

ESSENTIALLY this method is a thigh plaster and leg plaster conjoined by three equidistant arches of hoop-iron. The points of the method are:—1. That the interrupting supports radiate from a point in the centre of the limb and resist mobility equally in all planes. 2. The iron-hoops being covered with plaster become one with the splint, are much strengthened and much smoother, and less awkward. 3. There is quite free room for dressings, however bulky. The splint can be made much more serviceable by having an extension of plaster around the pelvis—a spica. The technique is the outcome of my own attempts.

The splint is especially suitable for all cases of long-continued suppuration of the knee and for cases of resection of the knee-joint. Also where the tibia is fractured into the knee or where infection has reached the joint from a wound in the tibia. It will be most useful where fibrous ankylosis is the best prognosis permissible from the nature of the injury. Such cases often last many months, entailing intense suffering. Unless the limb is fixed without mobility a bad alignment results from muscular action, when the ligaments of the joint are softened by long-continued suppuration. I have seen such dislocations outwards and backwards, and the only possible treatment was to amputate at the thigh.

The only other splints that would occur to any surgeon in this class of case are: The Wallace-Maybury; this is bad, since it tends to separate the opposing bony surfaces of the joint, and it allows the knee to sag down at each dressing. The same remarks apply to the Thomas. Of course, the use of the Balkan splint with this splint is obviously the best treatment in conjunction with this fixing apparatus.

The materials required are:—

1. For covering the leg: two cotton bandages, one flannel roller, and four strips of mackintosh 7 in. wide and of sufficient length to encircle the limb, with 2 in. overlap at each of the four edges of the plaster splint.
2. Eight plaster bandages and some 2 or 3 lb. of loose plaster, three bowls, a wooden stirrer, and some warm water.
3. A piece of charcoal or charred stick for marking the leg and the plaster, &c.
4. The iron-hoop arches made with flanges for fixing are of the following gauge and dimensions: Breadth, 1½ in.; length, the arch span, i.e., the distance of 2 in. above and below the extreme wound, included. The flanges 3½ in., and turned slightly upwards at their extreme end. The arch is to be 4 in. high, and the sides of the arch drop vertically to the flange. The gauge should be $\frac{5}{16}$ in., and if made of malleable iron can be easily bent and adapted by the fingers.
5. Half-pint of boiled linseed-oil "driers," ½ pint of spirit varnish, and two brushes to apply these.
6. Some strapping to fix the endings of bandages, &c.

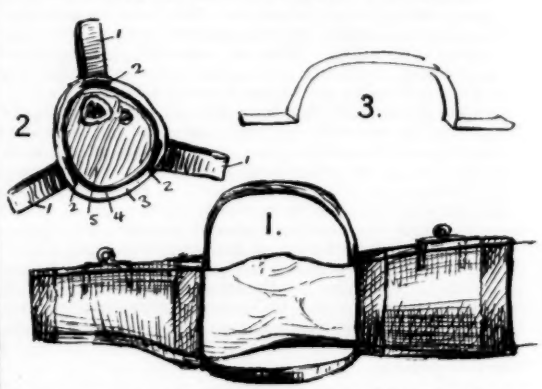

FIG. 1.—Inner side of leg and thigh, showing splint applied and coat sleeve mackintosh and rings of wire to affix to Balkan.
FIG. 2.—Section of leg seen from below with plaster and iron arches. 1. Arches of hoop-iron. 2. Flanges in thickness of plaster. 3. Plaster of Paris. 4. Flannel roller. 5. Section of upper part of leg.
FIG. 3.—The hoop-iron arches.

The detailed technique is as follows (Figs. 1–3):—

1. Anæsthetise the patient.
2. Mark the limits to be reached by the plaster. Dress the wound and bandage firmly. Pass a cotton roller over the area to be covered by the plaster, at the same time fixing the mackintosh strips, and protecting any old healed wounds, that will be covered by the plaster, with gauze squares. Over this put a layer of flannel roller, fastening off with a piece of strapping.
3. Plaster bandages are applied to the thigh and leg, above and below the marks, and made of three thicknesses of bandage. This must "set" before proceeding.
4. Sling the limb to the Balkan splint and have two capable persons to hold the limb both as to lateral form and axial alignment, under the continued supervision of the surgeon.
5. The irons are covered with a layer of cotton bandage and marked 1, 2, and 3 at their upper flanges. Take them in order, and having marked with charcoal three equidistant lines on the newly set plasters, fit each iron to its proper place by slight bending and axial twisting. When they ride truly make a complete outline of the site of each on the plaster, numbering each place.
6. The irons are now fixed, first all at one end and then at the other, by means of plaster bandages; further bandages are added until a thickness giving the required stability is

produced. The leg splint need not reach lower than to 4 in. above the malleoli.

7. Each metal bridge is now covered with plaster bandage round and round, until by working the surface with wet fingers the required smoothness is attained and the junction with the splint made perfect.

8. The mackintosh slips are turned back coat-sleeve wise, the stuff being cut when interrupted by the irons. The various parts are slightly fixed with strapping.

9. When quite dry the driers are applied, and over this, when hard, the spirit varnish, all over the whole plaster surface. This makes it resistant to everything short of continual soaking or the abundant use of peroxide of hydrogen, and prevents the troublesome shedding of powdery particles from the plaster surface.

The splint so prepared should be very comfortable and a welcome support. It should last 4 to 7 weeks, by which time further progressive emaciation of the limb may require a fresh splint to be made. The limb, splint and all, is slung from a Balkan frame. The dressings can be done with the minimum of pain, and the perfect alignment of the limb is assured. The patient can bear to have the limb handled and be moved on to a couch or spinal chair and so improve in health and spirits by being out in the open air.

It is easy to make additions to this apparatus, either of a plaster to include the foot or one to surround the pelvic girdle, or both.

My acknowledgments are due to Major Madrange, A.M.C., 1st Army Corps, and to Colonel G. S. Robinson, S.G., O.C. i/c Military Hospital, Eastbourne, for permission to publish this paper.

NOTES ON THE STARVATION TREATMENT OF A YOUNG DIABETIC.

BY P. C. COLLINGWOOD FENWICK, L.M.S.S.A. LOND.,
HOUSE PHYSICIAN, ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON.

Remarks by E. HOBHOUSE, M.D. Oxon., F.R.C.P. Lond., Lieutenant-Colonel, R.A.M.C., T., Physician to the Hospital.

A BOY, aged 16, admitted to the Royal Sussex County Hospital under Lieut.-Col. Hobhouse on Jan. 8th, 1916, complained of great thirst and wasting; this had been going on for two months. Family history excellent; no other member had had diabetes. He remained in hospital 6 weeks on full diet except that bread, sugar, potatoes, and fruit were allowed in very small quantities. On admission he weighed 6 st. 10½ lb.; when discharged on Feb. 15th he was 1 lb. heavier. The reports on his urine on admission and when he left were: specific gravity, 1042, 1030; acid; sugar, 4½ per cent., 4 per cent.; acetone and diacetic acid absent. Treatment with bile and pancreatin tablets had no effect on the amount of sugar in his urine.

On July 7th he was readmitted with a view to trying the starvation treatment. He was very much the same as when he went out, but had lost a pound in weight. Urine: specific gravity 1035, acid, sugar 4 per cent., no acetone or diacetic acid. He was kept to bed for a fortnight, when he was up on a chair for a short while. Each day he was allowed to do more, until by the time of discharge he was taking long walks morning and afternoon. His urine, on admission very acid, was kept neutral all the while by bicarbonate of soda, as much as 50 grains being given every four hours at one time.

The following shows his variation in weight during his stay of two months. He was weighed naked early in the morning after he had passed urine on each occasion.

July 23	...	6 st. 10 lb. 4 oz.	Sept. 3	...	7 st.
,, 30	...	6 st. 9 lb. 8 oz.	,, 10	...	7 st. 2 lb.
Aug. 6	...	6 st. 4 lb.	,, 17	...	7 st. 3 lb.
,, 13	...	6 st. 7 lb. 8 oz.	,, 23	...	7 st. 6 lb. 8 oz.
,, 20	...	6 st. 9 lb. 12 oz.	,, 28	...	7 st. 10 lb.
,, 28	...	6 st. 12 lb. 8 oz.			

From August 6th to Sept. 25th he gained over a stone in weight. During this time his urine did not reduce Fehling's solution, and only by a more delicate test could a trace of sugar be detected occasionally. He left the hospital on Sept. 25th in perfect health, with no sugar, acetone, or diacetic acid in his urine, and with his weight increasing weekly.

Since leaving hospital four months ago the boy has gained 2½ lb. in weight, has started learning motor engineering, and his urine still remains free from sugar, acetone, and diacetic acid.

Details of Diet and Analysis of Urine.

Date.	Urine. Sugar.	Acetone.	Diacetic acid	Diet.
July 23	4½ %	Absent	Absent	Black coffee, 4 oz., whisky, 2 dr. 4-hourly.
,, 24	Absent	Present	Present	
,, 25	,,	,,	,,	See below (1).
,, 26	,,	Absent	Absent	Rep. diet of July 25th.
,, 27	,,	Trace	Trace	Rep. and add meat 3 oz.
,, 28	Present	Present	Present	Diet as on July 23rd.
,, 29	Absent	Absent	Trace	Rep. diet of July 25th.
,, 30	,,	Trace	Absent	,, ,,
,, 31	,,	Absent	,,	,, ,,
Aug. 1	,,	,,	,,	See below (2).
,, 2	,,	Trace	,,	Rep. diet of August 1st.
,, 3	,,	,,	Trace	,, ,,
,, 4	,,	Absent	,,	,, ,,
,, 5	,,	,,	Absent	See below (3).
,, 6	,,	,,	,,	Rep. diet of August 5th.
,, 7	,,	,,	,,	,, ,,
,, 8	,,	,,	,,	,, ,,
,, 9	,,	,,	,,	,, ,,
,, 10	,,	,,	Trace	,, ,,
,, 11	,,	,,	Absent	,, ,,
,, 12	,,	,,	Trace	,, ,,
,, 13	Trace	,,	,,	,, ,,
,, 14	Absent	,,	,,	Cod-liver oil, 1 dr., t.d.s.
,, 15	Trace	,,	Absent	Rep. diet of August 5th.
,, 16	Absent	,,	,,	,, ,,
,, 17	,,	,,	,,	,, ,,
,, 18	,,	,,	,,	,, ,,
,, 19	,,	,,	,,	,, ,,
,, 20	Trace	,,	,,	See below (4).
,, 21	,,	,,	,,	
Sept. 2	Absent	,,	,,	Rep. diet of August 20th.
,, 3	Trace	,,	,,	Cod-liver oil, 2 dr., t.d.s.
,, 4	,,	,,	,,	See below (5).
,, 5	Absent	,,	,,	Rep. diet of Sept. 4th.
,, 25	,,	,,	,,	

(1) July 25th:—6 A.M.: cocoa (with little milk) 8 oz., 1 egg. 9 A.M.: black coffee 6 oz., whisky 2 dr. 12.30 P.M.: lettuce; greens or cucumber; 1 egg. 4 P.M.: tea (with little milk) 8 oz. 7 P.M.: lettuce or cucumber; black coffee 6 oz., whisky 2 dr.

(2) August 1:—6 A.M.: cocoa 8 oz., 1 egg. 9 A.M.: black coffee 6 oz., whisky 2 dr. 12.30 P.M.: meat 3 oz., greens. 4 P.M.: tea 8 oz. 7 P.M.: lettuce or cucumber; black coffee 6 oz., whisky 2 dr.

(3) August 5th:—6 A.M.: Cocoa 8 oz., 2 rashers of bacon, 2 eggs, lettuce. 9 A.M.: Black coffee 6 oz., whisky 2 dr. 12.30 P.M.: Meat 4 oz., greens; custard pudding (unsweetened); 1 apple. 4 P.M.: Tea 8 oz., 1 egg. 7 P.M.: Soup ½ pt. or boiled macaroni; lettuce. 8.30 P.M.: milk ½ pt.

(4) August 20th:—6 A.M.: Cocoa 8 oz., 1 roll gluten bread, 3 rashers of bacon, 2 eggs; or fish and 2 eggs; cucumber or lettuce. 9 A.M.: Coffee and milk 8 oz. 12.30 P.M.: Meat 6 oz., greens; 1 apple or banana; custard pudding; milk ½ pt 4 P.M.: Tea 8 oz., 1 egg, 1 roll, gluten bread, butter 1 oz. 7 P.M.: Soup ½ pt. or boiled macaroni; 1 apple or banana. 8.30 P.M.: Milk ½ pt.

(5) Sept. 4th:—6 A.M.: Cocoa and milk 8 oz., 3 rashers of bacon, 2 eggs, or fish and eggs; 1 roll of gluten bread; 1 apple or banana. 9 A.M.: Coffee and milk 8 oz. 12.30 P.M.: Meat 6 oz., greens; rice, sago, or tapioca pudding; 1 apple or 1 banana; 1 roll gluten bread; milk ½ pt. 4 P.M.: Tea and milk 8 oz., 1 egg, 1 roll gluten bread, butter 1 oz. 7 P.M.: Soup ½ pt., or boiled macaroni; 1 apple or banana; 1 roll gluten bread, butter 1 oz., cheese 1 oz. 8.30 P.M.: Milk ½ pt., 1 water biscuit.

Remarks by Lieut.-Col. HOBHOUSE.—The above account is of interest as showing the effect of starvation on a class of cases which are usually of a very hopeless character. The credit of managing and regulating the diet belongs entirely to Mr. Fenwick. One point of some interest is that acetone and diacetic acid were absent until the starvation diet was commenced, and then continued to appear intermittently for over three weeks, sugar being generally absent. I do not know what the explanation of this may be, whether it is due to the starvation itself or to something in the diet. The quantities present were always small. The case cannot be classed as one of the most severe, though the emaciation and weakness were great when the boy came in for the second time.

CITY OF LONDON TRUSS SOCIETY.—At the annual general meeting of this society, held on Feb. 7th at 35, Finsbury-square, it was stated that 5221 patients had been treated during 1916 and that 1100 trusses had been specially made to order.

THE CONTROL OF TUBERCULOSIS IN IRELAND.—Our Belfast Correspondent writes: At a recent meeting in Omagh Dr. E. C. Thompson drew attention to the bad effect of sending advanced cases of pulmonary consumption from the County Tyrone Sanatorium Home, a course which simply leads to spreading of the disease. It is to be feared that this practice, combined with the farcical type of notification of tuberculosis in vogue in Ireland, will in the end lead to very slight improvement in the incidence of the disease.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTIONS OF OTOLOGY AND NEUROLOGY.

War Injuries and Neuroses of Otological Interest.

A MEETING of the Section of Otology, to which members of the Section of Neurology were invited, was held on Feb. 16th, when a discussion on the above subject was opened by Mr. H. J. MARRIAGE, President of the Section of Otology.

Mr. MARRIAGE said that his remarks were based upon notes of cases kindly sent to him by Mr. Arthur Cheatle, Mr. E. D. D. Davis, Mr. Somerville Hastings, Mr. Pike, and Dr. W. S. Syme, and also on an excellent paper published by Mr. Logan Turner, Mr. J. S. Fraser, and Mr. W. G. Porter, a copy of which was sent to him by Mr. Fraser, in addition to cases which he had seen himself. The subject was dealt with under four main headings, a number of illustrative cases by various observers being recorded. I. (*a*) Wounds of the auricle. In these cases all that was usually required was to clean up the wound, remove fragments of metal, and apply antiseptic dressings. If the damage was very extensive it was often possible to save the greater part of the ear by performing a plastic operation. (*b*) Wounds of the external meatus were usually caused by missiles which entered either in front or behind the ear and passed right through the meatus; the cartilaginous meatus appeared most frequently affected, though at times the bony canal might also be damaged. In its course the missile often injured the facial nerve and might also injure more or less the mastoid process. Cicatricial stenosis of the meatus very commonly resulted in these cases if there was extensive injury and would cause some deafness, and there might be some internal ear deafness. II. Injuries of middle ear. Rupture of the tympanic membrane had been very common, mainly due to high explosive. The perforation occurred in the membrana tensa; the rupture seemed to be most frequent in the lower half of the drum. The size varied from a small pin's head to the loss of half the drum. In cases seen within a few days of the injury the edges were ragged and covered with dried blood, but later the edges became quite smooth. The commonest symptoms were marked deafness with at times loss of consciousness for a few minutes and often slight bleeding from the ear which might be followed by a little serous discharge; rarely there might be tinnitus and slight vertigo due to involvement of internal ear. In most cases when tested with tuning-fork (C) even a few days after injury bone conduction was normal, but air conduction was diminished, varying according to extent of damage; in several cases air conduction was also slightly subnormal when tested with tuning-fork (C^5). Complete loss of hearing had not been observed in any reports which had come under the speaker's observation. If no suppuration took place he found healing occurred in 1 to 3 months; E. D. D. Davis gave the time as 5 to 10 weeks. As regards the frequency of middle-ear infection Mr. Marriage was not able to give any satisfactory statistics, but in the cases seen by him about 30 per cent. had discharge when admitted to hospital over here. The majority healed quite well, with good recovery of hearing; two cases required operation on the mastoid. The usual treatment for ruptured drums adopted over here had been to disinfect the meatus and to keep it plugged with gauze or wool, avoiding all syringing and drops. Somerville Hastings reported an interesting case of hæmorrhage into the middle ear, and Cheatle also reported a case due to parachute descent. Nothing was done in the way of treatment, and in about a month the blood had become absorbed and the hearing had returned. III. Injuries of internal ear. (*a*) Direct injury of labyrinth by a missile. These wounds as a rule were fatal, but in a few cases the patient had survived, and Cheatle had reported a particularly interesting one in which a rifle bullet entered the left temporal region above the zygoma and emerged just to the left of the second cervical vertebra. (*b*) Indirect injury of labyrinth in fracture of skull might be caused by falls, blows on the head, or by bullet wounds. Syme and Fraser state in their paper:—

> If the force is applied at the side of the head in the direction of the petrous pyramid we get a longitudinal fracture which usually runs along the roof of the middle-ear cleft and, as a rule, in these cases the labyrinth capsule remains intact; if, on the other hand, the force is applied at the back of the head we get a transverse fracture which runs at right angles to the long axis of the petrous pyramid and always injures the labyrinth. As a rule, these fractures pass through the vestibule. The symptoms of such injuries are extreme or total deafness, marked disturbance of balancing, with loss of the cochlear and vestibular functions. If the labyrinth is injured there is an escape of cerebro-spinal fluid along with the blood. In the cases in which the labyrinth capsule is not injured there is no escape of cerebro-spinal fluid; but, nevertheless, deafness results from hæmorrhage into—or tearing of—the eighth nerve. One or two of the cases with fracture of the labyrinth have been microscopically examined many years after the accident, and filling up of the hollow spaces of the labyrinth by new connective tissue and bone has been found, along with secondary degenerative atrophy of the nerve structure.

(*c*) Concussion deafness might be due to constant gunfire day after day or to explosion near the patient of a shell. In the former case, in the speaker's experience, a slight amount of permanent deafness usually persisted after frequent exposure to noise for long periods. The deafness due to the explosion of a shell was generally for a short time very severe and at times the patient had been rendered unconscious, but as far as he knew the deafness had never been absolute. The symptoms and state of hearing were described. The drums were normal. A large proportion of these patients recovered their hearing in the course of one or two months, but others improved very little. The treatment he had adopted in these cases was complete rest in bed, with the administration of bromides in the early stages and later strychnine. As regards prognosis, as far as he could judge from cases seen, if marked improvement did not occur within six to eight weeks the outlook was distinctly bad. Even when the hearing returned tinnitus often persisted. The exact lesion was probably chiefly peripheral. IV. Psychical deafness was usually bilateral and was commonly seen in those who had suffered a severe shock—e.g., by being buried by a shell—without any visible injury. Deafness was usually absolute, nothing being heard either by air or bone conduction. It was generally accompanied by other nervous signs and symptoms, such as loss of voice, narrowing of the field of vision, tremors, irregular paralyses, and areas of anæsthesia. Spontaneous nystagmus was absent. These cases often recovered with a counter-shock, with rest and massage, or by giving an anæsthetic; at times asafœtida and valerian were useful. To distinguish this form of deafness from malingering was sometimes difficult, but it could generally be accomplished if a thorough examination was made. Finally, he said he believed that obturators were of distinct benefit in saving the hearing, and that one of the simplest and best forms was plasticine wrapped in gauze; this could be moulded to the shape of the external meatus, and was easily put in and withdrawn. Plugs made of celluloid should never be used.

Mr. SYDNEY SCOTT showed (for Mr. J. S. FRASER) an interesting series of photomicrographs of cases in ear injury.

Colonel H. F. BIRKETT, C.B., spoke of the work which had been done at his hospital, in conjunction with Dr. Gordon Wilson, in which institution were 55 beds set apart for this class of injury. He briefly indicated the lines on which the various cases were treated.

Dr. GORDON WILSON said he had the records of over 100 cases of nerve deafness, and he had seen in France a number of cases of concussion deafness soon after the condition occurred. The cases of ear trouble were divided into three groups: (1) cases of nerve deafness; (2) cases with a fixed idea that they could not hear; (3) malingerers. Some cases presented the problem as to whether they were cerebellar disease or labyrinthine wound. Some of the most difficult cases had been those in which the facial nerve had been cut outside the ear.

Mr. C. E. WEST referred to cases in which both the hearing and the visual fields were contracted in the same patient. Though he had done a considerable amount of war work, there were comparatively few cases of direct injury to the ear. He narrated several interesting cases.

Dr. DUNDAS GRANT also remarked on the few cases of clear-cut labyrinthine injury in the war. When the tympanic membrane was ruptured involvement of the labyrinth had been but slight. He discussed the guides to prognosis which he had found useful in his cases, and traversed the general subject.

Major G. P. SHUTER, Dr. C. E. JONES-PHILLIPSON, Mr. SYDNEY SCOTT, Mr. E. D. D. DAVIS, Mr. HUNTER TOD, Mr. SOMERVILLE HASTINGS, and Mr. W. M. MOLLISON continued the discussion.

SECTION OF PATHOLOGY.

The Central Nervous System in Hypothyroidism.—An Anatomical Abnormality Inherited from the Fifteenth Century.—Congenital Hypertrophy.

A MEETING of this section was held on Feb. 13th, Professor F. W. ANDREWES, the President, being in the chair.

Professor F. W. MOTT read a paper on the Changes in the Central Nervous System in Hypothyroidism. The nervous symptoms of myxœdema, he said, pointed to a condition of exhaustion of nervous energy, which could be remedied by the administration of thyroid gland. Consequently, upon the assumption that the basophil substance of the nerve cell is a source of nervous energy, one would expect to find what he had actually found in seven cases—viz., a marked chromatolysis, which in sections of the brain and spinal cord was revealed by the partial or complete disappearance of the Nissl granules throughout the central nervous system. Six of the cases had already been recorded. The chromatolytic changes were universal, sparing no system or group of systems of neurones entirely, but had been especially noted in the smaller cells of the autonomic nuclei—e.g., the vagus and glosso-pharyngeal. The cells of the olivary body showed much less change, and the Purkinje cells of the cerebellum less change than the large motor cells of the medulla oblongata, spinal cord, and Betz cells of the cortex, and there was no increase of neuroglia. All the asylum cases, especially four of the five, showed marked chromatolysis of the cortical cells; the one that manifested the least degree of mental confusion and other signs of insanity exhibited the least change in the cortical cells. The lantern slides of the seventh case, not hitherto described, showed very marked changes, and the mental symptoms were most pronounced. He had come to the conclusion that there was a type of insanity in women about the climacteric, in which a manic-depressive condition, associated with mental confusion, hallucinations, delusions (mainly of persecution), loss of memory of recent events, and terminating in dementia occurred, and which might arise as a result of a particular form of hypothyroidism. It was characterised by: 1. An atrophy of the glandular structure of the thyroid, interstitial fibrous hyperplasia, and abundant infiltration of the gland with lymphocytes—a condition of chronic inflammation arising from a toxic condition, probably local in its source, as Kojima had shown. The adjacent parathyroids did not exhibit this change. 2. An increase in weight of the pituitary gland as a rule. There was an increase of the pars intermedia, as had been demonstrated by Boyce and Beadles, and later by Herring, in experimental hypothyroidism. Herring had shown that the cells of this structure invaded the pars nervosa, and this had occurred in the case, the seventh, now being described. All five cases of hypothyroidism, in which the pituitary was examined, showed an excess of colloid in the pars intermedia. The characteristic perinuclear chromatolysis of the nerve cells found in these cases was not seen in two cases of simple atrophy of the thyroid gland. Examination of the thyroid in these two cases showed still normal colloid vesicles, and although there was an increase of fibrous tissue, there was no lymphocytic infiltration indicative of a local toxic inflammation, nor was there any increase of the pars intermedia or colloid material of the pituitary, observed by Kojima. It had, however, always to be considered how far the atrophy of a gland and failure of its function might act in upsetting the bio-chemical balance existing between the secretions of all the ductless glands and the sexual glands. In the five asylum cases, in which the suprarenal glands had been examined, a deficiency of lipoid in the cortex was observed, but it would be unscientific to correlate this condition definitely with the thyroid atrophy, for the patients had died usually from some acute infective disease, and Elliot had shown that in deaths so occurring the lipoid is diminished. Kojima, in his exhaustive examination of all the ductless glands in three cases, came to the conclusion that he could exclude the probability that changes in any ductless glands other than the thyroid could be responsible for the nervous and mental symptoms and the histological changes in the central nervous system. It was noted, however, that the ovaries were affected in three cases, and these were those in which there was not merely a glandular atrophy, but also a marked chronic inflammatory interstitial change. In the new case there were extraordinarily large ovaries and an enormous number of corpora albicantia, but healthy Graafian follicles were present. The blood and cerebro-spinal fluid gave a negative Wassermann reaction in all the cases.

Dr. H. DRINKWATER recorded a peculiar Abnormality of the Fingers which had been transmitted through 14 generations. The thumb and index finger were normal. In the middle finger the terminal joint was free, but the proximal interphalangeal joint was only slightly movable. In the ring and little finger the first and second phalanges were quite continuous. The hands were symmetrically affected. All the toes, excepting the hallux, were affected like the ring and little fingers. The patient's father had married twice. One of the patient's half-brothers presented the same abnormality, as did also his father and paternal grandfather. The patient himself was a direct descendant in the male line from the first Earl of Shrewsbury (d. 1453), and when the body of that nobleman was exhumed in 1874 it had been discovered that the fingers exhibited a similar variation. The mode of the inheritance of the malformation among the recent members of the family showed it behaved as a Mendelian dominant. Dr. Drinkwater did not think that there was any genetic relationship between this condition and brachydactyly.

Dr. H. S. STANNUS communicated an account of a case of Congenital Hypertrophy of a Lower Limb, which occurred in a native of the New Langenburg district, German East Africa, a man about 17 years old. The right lower limb was larger than the left at birth, the disproportion being maintained during growth. The length, as measured from the anterior superior iliac spine to the tip of the external malleolus, was 101 cm., as compared with 84 cm. on the left side. Skiagrams showed that the bones participated in the enlargement.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Dreams and Their Interpretation.

THE ordinary quarterly meeting of the Association was held at the Medical Society's rooms, Chandos-street, Cavendish-square, W., on Feb. 15th, Lieutenant-Colonel DAVID G. THOMSON, the President, being in the chair.

The PRESIDENT made sympathetic reference to the decease of a number of members since the last meeting, including Dr. William Orange, C.B., of Broadmoor, and a former President of the Association. He then offered the Association's congratulations to Sir Robert Armstrong-Jones on the honour of knighthood which he had received, and to Dr. John Warnock, the distinguished worker in lunacy in Egypt, who had been awarded the distinction of the Order of St. Michael and St. George. He added that Captain D. H. Pennant, a former assistant medical officer at Barnwood House Asylum, Gloucester, had been awarded the D.S.O. and Dr. P. M. Turnbull, formerly of Tooting Bec Asylum, the Military Cross.

Sir ROBERT ARMSTRONG-JONES having briefly acknowledged the congratulations of the Association, which he greatly valued, read a paper entitled "Dreams and Their Interpretation, with Reference to Freudism." He said that it was claimed by many that the interpretation of dreams helped to bring out of the unconscious mind what is perplexing and hidden, and restored the balance in the unstable and in those suffering extensively from mental shock. Freudians, he added, considered a dream as the symbol of an unfulfilled wish, which had to be interpreted by an assumed psycho-analytic code, but in his view the dream did not always, as assumed by Freud, refer to sex matters. The fact that dreaming could be induced by such agents as opium, alcohol, and tobacco favoured the view that it was a morbid process. There was, he said, good reason for the belief that most dreams occurred just before waking, while the age of greatest dreaming was between 20 and 25, and women, who slept more lightly, dreamt more than men. He thought that the sexual theory of dream-causation was over-emphasised, the psycho-analyst always finding what he sought, while he considered that the foreign teachers responsible for employing the "sex-mad methods," and the craze for new excitement,

have in this country already received posthumous recognition of their labours, for, thanks largely to the efforts of Dr. Mercier, Freudism in this country was practically dead.

Sir GEORGE SAVAGE, as a persistent dreamer and therefore with a wide experience, spoke of the very short time occupied by an elaborate dream, which he had been able to prove on more than one occasion.

Mr. ROTHSAY STEWART had found, after some practice, that he could trace every dream he had to something which had occurred before.

Colonel J. W. SPRINGTHORPE spoke of the many cases of shell-shock with which he had had to deal, in which he did not doubt that in 99 per cent. the cause was fright. Freud, in his wholesale attribution of dreams to sex matters, had made an unutterable mistake which was practically an insult to humanity.

Dr. J. G. SOUTAR remarked that British alienists did not proceed to examine everything in the light of a pre-conceived idea. It would be easy to discover some connexion with sexual matters in everything; but it was needed that such ideas should not prevail in the mind of the investigator. Such an interpretation of dreams was contrary to experience. He had found that when insane patients began to have happy dreams, it augured well for recovery.

Dr. ALICE JOHNSON pointed out, in opposition to the Freudian idea, that the mind could be made by psycho-analysis more the reservoir of beautiful things, and such a mind would dream beautiful dreams.

Dr. HELEN BOYLE believed people, especially children, showed a strong tendency to bury unpleasant memories. In some cases the psycho-analyst succeeded in burying those memories deeper.

Dr. A. N. BOYCOTT spoke of the power of opium in causing dreams.

Dr. R. H. STEEN pointed out that Freud did not refer everything to sex impulse. Freud had shown a wonderful patience and labour, for he had analysed a thousand of his own dreams before putting pen to paper, and 50 of his followers had done the same thing, so there was a great mass of material to go upon. He would have liked to hear a reference to the Zürich school, which went beyond Freud, and held that dreams had a prospective as well as a regressive function. Maeder had written extensively on this.

Dr. MONRAD KROHN said he had never seen the eradication of the sex-complex do any patient any good, yet he could not look upon Freud's ideas with so much indignation as did some others. There had been, in his view, a great heaping-up of new terms, without corresponding enlightenment.

Sir ROBERT ARMSTRONG-JONES replied on the various points raised.

ERRATUM.—In the report last week of the debate which took place at the Medical Society of London on Naval Medicine in the Great War, the latter portion of the speech inadvertently attributed to Major Mott was made by Dr. Thomas Beaton.

JOURNALS AND MAGAZINES.

Science Progress for January.—This excellent quarterly contains articles of the first interest to medical men in several of the departments of special knowledge with which medicine is now seen to be intimately concerned. Dr. Mercier continues a valuable analysis of the facts which form the answer to the old and difficult question—What is a disease? Dr. R. A. Houston, lecturer on physical optics in the University of Glasgow, gives an unmathematical account of a theory of colour vision which has already been described in the Proceedings of the Royal Society, and although the paper is necessarily highly technical, others besides specialists will be able to follow its arguments. Mr. W. P. Pycraft, of the Zoological Department of the British Museum, replies with force to the speculations of Mr. G. S. Miller, of the Smithsonian Institute at Washington, upon the jaw of the Piltown man, the nature of his criticisms being dictated by the unfortunate fact that Mr. Miller appears not to have seen the remains concerning which he states that the cranial portions are unequivocally human, while the lower jaw is that of a chimpanzee. Mr. Pycraft's whole-hearted design to demolish Mr. Miller's contentions has received the endorsement of Dr. Smith Woodward, Professor Elliot Smith, Professor Arthur Keith, Professor A. S. Underwood, and Dr. Broom. Useful notes on the recent advances in science are made by a well-qualified group of writers, and the editor, Sir Ronald Ross, contributes an essay-review, entitled "The Sister of Science," founded on a recent book of verse by Mr. John Masefield and the "Book of Homage to Shakespeare," edited by Dr. Israel Gollancz. The title of the essay-review displays the writer's well-known love of poetry; its contents show that, having given proof of his personal abilities in the field of poetry, he is also a sympathetic critic.

The *Cornhill* for February contains a very interesting note on the sensations of being gassed recorded by Mr. Lewis R. Freeman in an article entitled "Beating Back from Germany." Mr. Freeman, an escaped prisoner from Germany, was among the first victims of the use of gas in war, when no precautions were taken and when the treatment was also still to find.

"My first sensation," he says, "was of a smarting way up inside of my nose. This quickly extended to my throat, and then, as my lungs suddenly seemed filled with red-hot needles, I was seized with a spasm of coughing. Coughing up red-hot needles is not exactly a pleasant operation, and the pain was intense. Mercifully, it was only a few minutes before a sort of stupor seemed to come on, but even as I passed into half-consciousness I was aware of my outraged lungs revolting, in heaves that shook my frame, against the poison that had swamped the trench. With some of my comrades the fighting instinct was the last thing that died, and I have a sort of a recollection of two or three of them clutching at the parapet and firing from cough-shaken shoulders off into the depths of the rolling yellow gas clouds. One lad toppled over beside me and still kept pumping shots from the bottom of the trench. I remember hazily trying to kick his rifle out of his hand as he discharged it over my ear, and, failing to locate it with my foot, recall groping instinctively for my old wrench and trying to disarm him with that. My last recollection of this stage of things was the shock of feeling the wrench-handle swing backwards harmlessly for lack of my two shrapnel-smashed fingers to steady it. I had rolled and writhed, in the agony and pain of the gas in my lungs, in a pool of slush in the bottom of the trench, and it must have been the lying with my face buried in the shoulder of my wet woollen tunic that saved my life."

After describing his recollections of the occupation of the trench by the Germans, he continues:—

My connected recollections begin after my waking up in a hospital—well back from the Front, but still not out of the sound of the guns—that was evidently devoted entirely to "gas" cases. The ward I was in was filled with men from my own regiment, but what interested me specially—as soon as I was able to take any interest in anything beyond my own suffering—was to observe that a great many Germans were also being treated in the same hospital. I never did find out just how these happened to be "gassed," but presume it was either through accidents to their apparatus or from their "snoots" being faulty. At any rate, the Germans had evidently prepared in advance for "gas" cases, and the chances are that they pulled through a good many of us who might have died had we been taken back to our own hospitals, where they had, at that time, small facilities for handling that kind of trouble. The ward was kept as hot as a Turkish bath, and some of our chaps thought this was done with the idea of making our agony worse. One of them, who jumped out of bed, threw up a window, got a lungful of cold air, and died the same night, gave us a proper object-lesson in why the air had to be kept at close to blood heat. Some of them also thought that a kind of stuff they gave us to inhale made us worse rather than better, but that was only their imagination. If there was any real ground for complaint it might have been on the score that the doctors tried a good many experiments on us, because this was the first chance they had had to study gas poisoning on a large scale, but that was no more than we could have expected.

The *Burlington Magazine* for February.—This admirable monthly magazine is publishing a series of notes on dress as described in Shakespeare, which have considerable medical interest, though nothing, probably, was further from the mind of the writer. The medical conclusion will be that our modern attire, although constantly ridiculed as dull and meaningless in detail, and unhygienic in design, is a far more healthy method of dressing than that in use by the Elizabethans. The rich habits of the sixteenth century, save in the case of persons endowed with money and prominent in position, were not hastily discarded. Elizabethan suits, cloaks, breeches, and jerkins went on not only from year to year, but from father to son, and must have been veritable germ-traps by the time that they reached the valet or were cut up to adorn more modest clothes. For even where a garment was not handed on in this way as a whole, its various trimmings of lace, braid, or fur were made to adorn newer garments in a manner which modern thrift or modern ideas of cleanliness would not condone.

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THE LANCET.

LONDON: SATURDAY, FEBRUARY 24, 1917.

Food Problems.

THE U boats and Lord DEVONPORT have produced among thinking people in this country a concentration on food problems in much the same way as the publication of the Eltzbacher report did in Germany two years ago. Of this report we were able to publish an extensive summary in THE LANCET of Feb. 20th, 1915. Up to now the average well-bred person in this country has been slightly overfed, and in consequence—a point distinctly in favour of slight overfeeding—has thought little about food, any preoccupation with the subject being left to the glutton and the really hungry. The report drawn up by the Committee of the Royal Society bears comparison with the German figures and shakes many of our preconceived notions. It is surprising to learn that the available food per man before the war occurred was considerably larger in this country than in Germany—4009 large calories in England compared with 3642 in Germany. The idea was certainly prevalent that the German ate more than the Englishman, and this may, of course, have been true or merely an impression gained from a difference in table manners. But, if true, it is, at all events, nearly certain that we had more food at disposal, and if we did not eat it we must have thrown it away. There is, as the Royal Society report points out, a small unknown factor in that the English calories are calculated on the total amount of available foodstuff, whereas the German figure takes into account the deduction for food which is eaten but not utilised in the bodily economy. If this deduction amounted, as appears, to about 11 per cent. the figures for the two countries become more nearly equal. There are, of course, various ways of throwing away food. It may be destroyed or spoiled before it reaches the consumer, squandered by careless housekeeping or improper culinary methods, wasted by complete ignorance of the methods of carving, or left on the plate; and doubtless all these ways are physiologically more righteous than burdening the digestive and excretory organs, yet some or all, with varying intensity, are still playing their part in many homes.

Starting, then, as we may, from 4000 calories as about the normal adult allowance of food in each country, we note that in 1916 the British soldier on active service abroad is apportioned 4644 calories, at home a sixth less, or 4031 calories, in each case including extras, leaving an estimated 3859 calories available for the civilian. The Eltzbacher Commission calculated that 3151 calories per head would be available in Germany in 1916 if certain measures of increased production and economy were carried out. The actual physiological requirement of the adult has been placed in the neighbourhood of 3000 calories by German authorities and of 3500 calories, for a man on fairly light munition work, by Dr. LEONARD HILL. But we really do not yet know by experiment on any large scale the food requirement of a large mixed body of persons in order to maintain health, and even the chairman of the Royal Society's Committee in investigating last week his own unrestricted diet as a brain-worker was surprised to find the result work out so low. A slight clue to the calorie value now considered necessary in Germany may perhaps be gained from KÖHLER'S recent suggestion to issue cards entitling the possessor to buy food up to 2500 calories per head per day, with some extras for a man engaged in severe manual work. For the sake of the revenue KÖHLER would allow the purchase of more calories than this, at the price of a rapidly ascending increment tax. For the rest a careful study of German medical literature fails to convey any certain impression that the food restriction has so far worked harmfully on the adult. Medical Munich, in fact, allows itself the playful suggestion that the restriction has not been without advantage to the slightly over-nourished Berlinite.

When we turn to the quality of foodstuffs we find that war conditions are giving the man in the street some much-needed insight into the distinction between economical and expensive foods. The Royal Society's Committee brings out the relative cheapness of dairy products over beef and mutton, especially over the former. The report states that 1000 calories in the form of milk from a good cow presuppose only 3 lb. of starch or its equivalent in the fodder supplied, whereas the same number of calories of steer beef are the product of 9 lb. of fodder. Similarly, a substitution of cheese for butter would give an average of 4·2 grammes more protein per man throughout the whole country. In agricultural countries dairy products, pig-meat, and veal are the natural food of the people, and we now realise that economy, as much as homely taste, may dictate the preference for these meats. That a whole nation may rapidly change its diet-sheet is evident from the fact that Germany ceased at the onset of war to export its million tons of beet sugar and consumed them at home to compensate for the loss of imported fats. The Eltzbacher Commission pointed at the time to England, and a fortiori America, as countries in which a high consumption per head of sugar was unattended by ill-result. The non-necessity of a large proportion of meat in the dietary was strongly emphasised by the Commission, and in Charlottenburg any citizen may now exchange his full meat-card of 250 grammes for 375 grammes of macaroni, semolina, or oatmeal, or a child may exchange his meat-card of 125 grammes for 200 grammes of cereals. RUNGE has just noted the greatly diminished incidence of eclampsia among pregnant women in Berlin, and puts this down to the larger proportion of fat and carbohydrate and the smaller proportion of protein in their daily food.

The distribution of the total food among the various age-groups of our population affords fruitful material for useful discussion. The Royal Society s

Committee and the Eltzbacher Commission agreed in allotting to the young child two-fifths, to the child of 6 to 9 one-half, and to the lad or girl of 14 or 15 three-quarters of the man's ration, assessing the adult woman at four-fifths. For the soldier in the trenches, being a man in the prime of life, with well-conditioned muscles and arteries, exposed to cold, fatigue, and prolonged bouts of severe exertion, it is probably difficult for any amount of overfeeding to be actually harmful. Sir ALFRED KEOGH called attention last week to the value of this relative excess of food in the prevention of infections under conditions of war. Overfeeding, too, in phthisis, has been credited with a certain value, and there have been painful reports in circulation of the incidence of tuberculosis among the now chronically underfed children in Belgium. But an Army food ration of 4500 calories, associated with some rum and much tobacco, would infallibly have most harmful effects on a pure brain worker, as well as on the older man whose excretory powers are diminishing and whose arteries are hardening. And after the age of 45 there is no reason to suppose that an excessive ration of food protects the civilian at all events against infections, and much reason to know that it shortens his life from gout and arterial degeneration. HERMANN SAHLI indeed tells his students year by year that they have a certain amount of food which they can consume in the course of their lives, and that they can do so as they please, whether slowly or quickly, living in the one case to a great age, and in the other dying early as a result of high arterial tension. Commissions in Australia and America have recently[1] called attention to these dangers. In the woman after the climacteric there is a tendency either to become stout or thin, and little doubt can be felt that the latter tends toward comfort and longevity. The food limitation in Germany has, however, led to much anxiety in regard to the children, and the results of a few investigations bearing on the subject have been published. SCHLESINGER has just reported on 1300 school children in Strassburg, of ages from 6 to 14, weighed at the beginning and end of the third quarter of 1916. Normally during this school quarter 75 per cent. of the children lose weight, but last year 90 per cent. of them did so, including those from well-to-do families. Loss of fat was evident, but in spite of this not more than the usual proportion of anæmia was noted, and no evidence of the listlessness and inertia of malnutrition. The author's recommendation was, nevertheless, to increase the bread ration for children of 14 to 17 and to give a morning glass of milk to those of 6 to 10. H. FINKELSTEIN admits the feeding of the young child in poor Berlin families to be a matter of grave difficulty, incidentally mentioning that the poor mother's midday meal consists now usually of potatoes and swedes, while the daily ration of sugar is at present 25 grammes and of potatoes 360 grammes.

The net conclusion to which it is possible to come from the various conditions set out above is as follows. In any community with an available food-supply of anything like 3500 calories it should be possible so to apportion it among the various age-groups that neither the young child and nursing mother nor the active young adult suffers. Outside these groups a greater limitation of intake may be tolerable or even beneficial.

[1] A Campaign against Adult Mortality, THE LANCET, 1916, ii., 683.

War Injuries and Neuroses of the Ear.

IN addition to direct trauma of the hearing organ and to the damage produced upon it by long-continued exposure to loud noises, the present war has made us acquainted with new varieties of deafness as a result of the tremendous shocks to which the delicate nerve structures of the cochlea and brain are so frequently exposed. The most distressing of these nerve injuries are seen in soldiers who have been buried by explosions, an experience which, apart from any obvious bodily injury, frequently brings about a complete functional disorganisation of the whole nervous system. In the worst cases death is the result. But, short of that, the man may be reduced to a state of imbecility, with vertigo, blindness, deafness, and loss of speech. This condition of general sense-paralysis is, however, only transitory. In the course of a few hours the patient recovers control of his faculties, and has little to show for his terrible experience save a painful and obstinate "loss of nerve." In many instances, however, we must add, one or other of the special senses or faculties remains out of gear for several weeks or months. And one of the senses thus afflicted is frequently that of hearing.

At a special discussion on "War Injuries and Neuroses of Otological Interest," held at the Otological Section of the Royal Society of Medicine on Feb. 16th, these points were fully brought out by the speakers, all of whom had had special experience of these particular types of warfare injury. As we might expect, the differentiation between the functional or temporary upset and the organic or permanent lesion is of great importance, and sometimes of considerable difficulty. For this distinction many speakers laid stress upon the general aspect of the patient as affording a clue to the real nature of the deafness. Another point of value is that the functional or "psychic" deafness is bilateral and, at first, absolute, while deafness from a permanent lesion is asymmetrical and incomplete. The latter type has become familiar to the otologist nowadays as a sequel to a superficial bullet wound of the skull in the neighbourhood of one or other ear. But a shell explosion may also, of course, produce a labyrinth lesion which leads to permanent deafness and that without any evident traumatism. A third method of differentiation consists in the use of the vestibular tests which in functional deafness give a normal or exaggerated response, while in organic perceptive deafness the vestibular reflexes are more or less impaired. At the outset, the participation of the vestibular system in the general disturbance is evident in the presence of vertigo and spontaneous nystagmus

immediately after the explosion. But, as in other sudden interferences with the entire labyrinth, the vestibular system recovers early, so that by the time the patient reaches the base hospital his acute vestibular phenomena have usually subsided. The prognosis in functional deafness is good even when it is absolute; recovery, and sometimes sudden recovery, is to be expected. The latter event may be brought about by judicious "shock" treatment, such as is brought about by running cold water into the external meatus, or by applying the caloric test, a method of treating hysterical deafness which was introduced some years before the war. The shock treatment by faradism, it should be noted, is harmful and should be avoided. When the deafness persists the treatment adopted is, first and foremost, the building up of the patient's bodily and mental strength by good food, fresh air, bright society, and, above all, peaceful surroundings. If, in spite of these favourable conditions, the deafness continues, then the most reliable method of restoring function is by some method of re-educating the hearing. This may be done, first of all, by the careful and persistent application of vibrating tuning-forks to the mastoid so as to arouse the sleeping sense through the medium of bone-conduction. Later on recourse may be had to resonators. Several curious facts emerged in the course of the discussion, which was well maintained, one being that when the tympanic membrane is ruptured by the shell-burst the labyrinth manifests no evidence of damage. This experience is in correspondence with the fact that shell-shock in general is rarely associated with actual external wounds. But it is certainly remarkable that the rupture of a small structure like the tympanic membrane should be sufficient to divert the weighty blow from the more important cochlea. Doubtless the cause of this phenomenon lies in the fact that the energy of the explosion-wave in the act of destroying the integrity of the membrane is thereby dissipated in a series of deviations from the normal path. And so the delicate internal ear escapes the injury.

Mr. H. J. MARRIAGE, the President of the Section, in his introductory paper advocated for the protection of the hearing the use of an obturator in the external auditory meatus of the soldier exposed to a bombardment. And the same, of course, applies to the sailor. But he warns us that the obturator should be made of plasticine or some such material, and *never of celluloid*, as several men have had their ears damaged by the flash of a shell igniting plugs made of that inflammable substance.

AN Order has been issued by the Local Government Board authorising medical officers of health to vaccinate or revaccinate small-pox contacts gratis where the circumstances demand it.

A READING of the poems of Sir Ronald Ross will be given on March 23rd, when the vocal interpretation will be undertaken by Miss Miriam Lewes and Mr. William Stack. Sir William Lever has placed his Hampstead house at the disposal of the Poetry Society for the occasion, and non-members of that society may obtain further details from the secretary at 16, Featherstone-buildings, W.C.

Annotations.

"Ne quid nimis."

CRIMINAL LAW AMENDMENT.

THE new Criminal Law Amendment Bill introduced in the House of Commons by the Home Secretary contains very important provisions not only relating to the communication of venereal disease, although these constitute the most novel feature of the proposed legislation. By Clause 2 of the Bill it is made penal for a person suffering from venereal disease in a communicable form to have sexual intercourse with any other person, or to solicit or invite any other person to have such sexual intercourse, the maximum penalty provided being two years' imprisonment with hard labour. It will, however, be a defence if the person charged proves that he or she had reasonable grounds to believe that he or she was free from venereal disease when the alleged offence was committed. Power is given to the court to order the medical examination of the person charged in certain circumstances, and the examination thus ordered shall, in the case of a female, if she desires it, be conducted by a female doctor. It is further provided that—

> Where a person has within three months before the commission of any alleged offence under this section received a written notice either on an examination ordered under this section, or while under compulsory detention in any prison or other institution, from a duly qualified medical practitioner that he or she is suffering from venereal disease in a communicable form, that person shall be deemed to have been so suffering at the time when the alleged offence was committed, unless the contrary is proved.

As the fact that any person was at a given time suffering from venereal disease in a communicable form must in most instances be only provable by medical evidence, the importance of the proposed law to the medical profession is obvious. Further, a question in this connexion may well suggest itself as to how far pressure is likely to be brought upon medical practitioners to give evidence against their patients in order to obtain their conviction, and the insertion of words protecting them against the possibility of such pressure is desirable. The conferring of privilege upon any communication, made by a medical man on the subject of infection in the public interest, is a further useful addition to the Bill. The Bill also makes very important alterations in the law relating to indecent advertisements. These, it will be remembered, have hitherto been dealt with under an Act passed in 1889 which provided penalties for classes of advertisements the prevention of which is badly wanted, but only when they appear in public places. Under the Bill, which, no doubt, the Government will have no difficulty in passing, any "person who publishes by way of advertisement or causes to be so published any picture or printed or written matter which is of an indecent or obscene nature" will be guilty of an offence, and not only any advertisement relating to venereal disease and cognate matters is declared to be indecent, but also any which suggests "directly or indirectly the use or taking of any appliance, drug, substance, or thing for the purpose of procuring miscarriage or abortion, or which suggests directly or indirectly that any premises are or can be used for immoral purposes." Advertisements in bonâ fide medical and pharmaceutical publications

are made exceptions to the above. The general prohibition of the advertisements of quacks and nostrum vendors who, by their obvious admissions, are abortionists is a matter in which THE LANCET has interested itself for many years. Such advertisements have recently been confined to a few disreputable publications, some of which seem to have disappeared since the war began. They were wont to make flaunting appearance in all sorts of prints—especially in newspapers published on Sunday and in religious papers. In any case, the proposed Act of Parliament will deal a vital blow to those advertisers of the sort who survive and to the iniquitous trade which they have fostered and assisted. The Criminal Law Amendment Bill further proposes to render more stringent the provisions of the law relating to sexual intercourse and acts of indecency in the case of girls under 16 years of age, and to the keeping of brothels.

SPECIFICITY IN ANTISEPTICS.

THAT the power of an antiseptic to kill organisms is not the same for all organisms has been recognised in bacteriological practice for a long time, and Dr. Kenneth Taylor's special study in regard to the antiseptic treatment of chronic infected wounds, exhibiting, as they do, several types of bacteria, deserves careful reading. He records a large number of bacteriological examinations of wounds under treatment with different solutions, and instances are brought forward of the specific action of certain dressing solutions. The belief is expressed that further analytical study of antiseptics will result in the discovery of dressings specific for one or more groups of bacteria. By a successive application of these dressings the organisms present in a wound, he holds, may be reduced in number or eliminated, one variety at a time, and true sterilisation of a suppurating wound accomplished. The concept of the "general antiseptic," he concludes, must go by the board and the search for a cure-all be recognised as unprofitable. One interesting case is that of the gas bacillus, on which no effect seems to have been produced by any of the dressing solutions with the exception of quinine, where the early disappearance of the organism was strikingly apparent, a result which is consistent with earlier experience of the behaviour of this alkaloid both *in vitro* and in clinical application.[1] Quinine, however, showed very little action upon the staphylococcus and still less upon the *B. pyocyaneus*. Further examples of equal interest of the specificity of antiseptics are given with other germicidal preparations. Thus, carbolic and cresol proved more active against the streptococcus than against the staphylococcus, and showed very little activity against the gas bacillus. Thymol showed a fair degree of activity against the streptococcus, but was less active against the staphylococcus and still less so against the gas bacillus, while it showed practically no action upon pyocyaneus. Dakin's solution, which has been regarded as a general antiseptic, showed a moderate activity against the staphylococcus, but was nearly inert against the *B. pyocyaneus* and the gas bacillus, although more active against the streptococcus. The results are certainly full of interest and importance and seem plainly to point out the great variation in the activity of some of the "general antiseptics" toward the common bacteria of infected wounds, so that the conclusion that bactericidal values are relatively specific and not general seems abundantly justified. Touching somewhat upon the same subject, a paper on "A Comparison of Some Antiseptics in Respect to their Diffusibility, Action of Leucocytes, and Action on Ferment Activity," by Hugh E. Magee, B.Sc., appears in the February number of the *Edinburgh Medical Journal*, in which the author expresses his acknowledgment to Dr. Kenneth Taylor for his help in the prosecution of this research. In order to demonstrate wherein antiseptic solutions differ from each other, a comparative study was made of some of the common bactericidal agents in regard to diffusibility, chemiotactic action, and action on ferment activity. These properties are shared in different degrees by various germicidal solutions as is clearly shown in the paper, and the results are instructive in connexion with the treatment of wound infection. A number of antiseptics were chosen for the investigation and their values in the directions indicated deduced. The specificity of the antiseptics tested bears a relationship to the properties investigated.

[1] Use of Quinine in the Treatment of Experimental Gaseous Gangrene, THE LANCET, Sept. 4th, 1915, p. 538; and the Use of Quinine Hydrochloride Solution as a Dressing for Infected Wounds, Brit. Med. Jour., Dec. 25th, 1915.

THE STATISTICS OF INFANTILE MORTALITY.

TUESDAY'S lecture at the Royal Statistical Society on "The Relation of Infantile Mortality to Mortality in Subsequent Life" was delivered by Dr. John Brownlee, director of statistics to the Medical Research Committee, and will serve as a useful tonic to all those who have to deal with the statistics of infantile mortality. He began by describing the three points of view taken in regard to the attempt to save infant life by means of administrative action. The first group holds strongly that every child's life saved adds another potentially fit member to the working power of the State. The second is an opposing group which holds equally strongly that measures such as those taken to save infantile life can only lead to an increase in the number of unfit persons for whom the nation has ultimately to provide. The third group, in which the lecturer found the medical officers of health strongly represented, regards the unfitness which develops after infancy as largely due to the environmental conditions in which the child grows up. Dr. Brownlee then examined the statistical evidence on which these points of view were based, and found reason to doubt every method proposed to measure the influence of the death-rate as a selective agent. A large number of deaths among children are due to epidemics, and so long as our knowledge of the epidemiology of disease remains as limited as it now is no estimate of selective influence can, he said, be of the least value. This agnostic attitude does not prevent Dr. Brownlee being personally of the opinion that an improved environment is the most important measure for the maintenance of a healthy race, and that no effort can be too great to accomplish this improvement.

FERNS AS A SOURCE OF STARCH.

Professor A. E. Shipley's suggestion in a letter in the *Times* of Feb. 19th that the underground stems of the common bracken fern or brake might profitably be used as a source of starch deserves attention. The common bracken fern is abundant enough throughout the country, but, of course, one serious difficulty would be its economic collection. The underground stem, says Professor Shipley, is

packed with starch, and is simply there asking to be taken. It would be interesting to find out the actual percentage of starch which the rhizome contains, but in the references which we have been able to make there is no information upon this point. According to Dr. W. T. Fernie in his book on "Herbal Simples," the bracken contains much potash, and its ashes were at one time employed as the alkali for making soap. The young tops of the plant, he goes on to say, are boiled in Hampshire for hog's food, and the peculiar flavour of Hampshire bacon has been attributed to this custom. It would appear from this authority also that the root affords much starch, and in northern climates a coarse kind of bread is made from the roots of the brake fern, whilst in the south the young shoots are often sold in bundles as a salad. All this confirms Professor Shipley's observations. In an article on "Ferns" in "The National Standard Dispensatory" it is stated that "in the East Indies and Polynesia the rhizomes of a number of ferns are eaten as starchy foods, or the starch is extracted from them." Experiments might be begun to ascertain the most economical method of separating the starch from the rhizome, and then some idea will be gained as to whether the yield of farina is profitable. At any rate, the starch so obtained might be used in certain industrial processes in which starch from cereals is used, and the latter so saved for food purposes.

THE PREVALENCE OF INTESTINAL PROTOZOA.

A SURVEY of the special report recently issued by the Medical Research Committee on "Amœbic Dysentery and the Protozoological Investigation of Cases and Carriers" contributed by Mr. Clifford Dobell will bring to the medical world the knowledge of the great prevalence of amœbic dysentery carriers amongst our forces, a prevalence which is borne out for the Salonika area by the paper of Lieutenant W. Roche, R.A.M.C., which appears in another column. Mr. Dobell's first conclusion, which he has formed as a result of his investigations, is as follows: That negative findings of *Entamœba histolytica* cysts in examinations of the fæces, even when carried out by competent examiners, cannot always be relied on to prove that the patient is not a carrier of the disease. He deduces from detailed observations that all cases that have not been treated should have at least six different examinations of the stools before being declared negative. Cases undergoing treatment should not be declared negative on examinations made during this time, as a negative phase is then very prevalent, but they should be examined at intervals during the three weeks following the completion of treatment. The second conclusion formed by Mr. Dobell is that emetine bismuthous iodide, properly administered in full doses, frees carriers from *Entamœba histolytica* cysts, whilst treatment with emetine hydrochloride has not been found successful. Emetine bismuthous iodide is a new drug introduced by Dr. H. H. Dale.[1] The earlier forms prescribed caused considerable nausea and vomiting, but in more recent preparations this defect seems to have been greatly lessened if not overcome. Mr. Dobell deals also in the report with the intestinal flagellate protozoa. He does not see any reason to consider them pathogenic, and thinks they generally occur as part of a diarrhœa and are not the cause of one. This is the general opinion amongst the greater number of French and English workers. No one has yet found any remedy which completely eliminates these parasites from the infected intestine.

[1] THE LANCET, 1916, ii., 183.

OPHTHALMIA NEONATORUM.

THE second annual report just presented by the Central Council for District Nursing in London to the annual meeting deals chiefly with the subject of ophthalmia neonatorum. 806 cases were notified in 1915 to the London County Council, being 60 more than the average for the last few years, and several constituent nursing associations have recently reported an increase in the number of cases seen by them. The Council considers that much of the difficulty in dealing successfully with the condition arises from the fact that, at the time when the disease usually appears, both mother and infant require skilled care and treatment. Two main alternative lines of procedure are open for adoption: (1) The removal of both mother and babe in an ambulance to undergo appropriate treatment in hospital or infirmary; (2) adequate supervision and treatment at home. The Council discusses these two alternatives without definitely pronouncing its own preference in the matter. While recommending, on the one hand, to King Edward's Hospital Fund the provision of greater facilities for in-patient treatment, it lays stress also on the need for some training in ophthalmic nursing on the part of district nurses, and petitions the Local Government Board to give grants to nursing associations for service rendered in cases of ophthalmia. The in-patient treatment of these cases has, we believe, long been attended with excellent results at the St. Paul's Eye Hospital in Liverpool, and probably both alternatives may have their place in any well-ordered scheme for the metropolis.

THE USE OF ANTIMONY.

FEW drugs have a record of a more varied reputation than antimony, ranging from the extravagant praises of Basil Valentine 300 years ago to the comparative neglect of more recent times. The history of its use was lately traced in a paper read before the Hunterian Society.[1] A favourite remedy for many diseases in the seventeenth and eighteenth centuries, it was later adopted in the place of blood-letting for pneumonia and inflammations generally. This became the orthodox treatment for 50 years. Trousseau, whose lectures were published in 1861, was probably the last great champion of antimony in pneumonia. By that time it had been discovered that inflammations recovered better without either antimony or venesection. The doctrine, however, survives in some medical minds. The recent revival of the use of antimony is one of the triumphs of rational therapeutics, for it was through reasoning from its chemical affinities that Professor Cushny and Mr. Plimmer were led to try the remedy in diseases dependent on protozoal parasites. The control of trypanosomiasis by antimony and arsenic, given together or in alternation, is as striking in its way as the cure of malaria by quinine. The respective values of the two metals and the best method of administration have yet to be fully worked out. At present the drugs are

[1] THE LANCET, 1916, ii., 1104.

often given intravenously at the beginning of the treatment, and later intramuscularly or by the mouth for a period of two years or more. Owing to the irritant and depressing qualities of many of the salts of antimony it is very necessary to use the metal in a form most easily tolerated. Several efforts have therefore been put forth to obtain a colloidal solution. The method of preparation of a stable solution of this nature was recently described in our columns by Dr. U. N. Brahmachari, of the Campbell Medical School, Calcutta.[2] The effects of antimony in sleeping sickness and kala-azar have led to its trial, with apparently good results, in the allied spirochætal diseases syphilis and yaws—in the first of these in the form of antiluetin.[3] Here the old reputation of Plummer's pill, containing antimony sulphide, given as a so-called alterative, may be recalled. Some of the cases in which it seemed to do good may well have been those of chronic spirochætal infection. The value of tartar emetic in some skin affections, as shown by Crocker and Willmott Evans, may have a like explanation. It may be noted that antimony is a constituent of many natural arsenical waters, especially those of Bagnères de Bigorre and Dax in the Pyrenean district.

WE regret to record the death last Saturday of Dr. Louisa Woodcock, physician to the Endell-street Military Hospital and out-patient physician to the New Hospital for Women.

NEXT week, at the Royal College of Surgeons of England, Dr. Wilfred Harris is to deliver two Arris and Gale lectures on "The Morphology of the Brachial Plexus in its Relation to Surgery" (Monday, Feb. 26th, and Wednesday, Feb. 28th, at 5 P.M.), and in the following week Professor A. E. Webb-Johnson will give a Hunterian lecture on "The Surgical Complications of Typhoid and Paratyphoid Fevers" (Monday, March 5th, at 5 P.M.).

OUR list of New Year Honours published last week should have included the name of Mr. Charles Lane Sansom, Principal Medical Officer, Federated Malay States, who has been made a C.M.G. In a supplementary list is the name of Professor J. C. Bose, C.S.I., C.I.E., who has received a Knighthood. His investigations into the electrical response of muscular and plant tissues are well known, as are also his studies in regard to the action of drugs on plants. An abstract of a lecture by Professor Bose on this latter subject was published in our issue of Nov. 7th, 1914, p. 1105.

[2] THE LANCET, 1916, ii., 723.
[3] Tsuzuki: Deutsche med. Wochenschrift, 1913, p. 985.

THE LANCET, VOL. II., 1916: THE INDEX.

OWING to the continued shortage in the paper-supply the Index and Title-page to the volume of THE LANCET which was completed with the issue of Dec. 30th, 1916, have been printed separately, and copies have been supplied gratis to those subscribers who have intimated to us their wish to receive them. Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager, THE LANCET Office, 423, Strand, London, W.C. Such applications should be sent in at once.

THE CONTROL OF VENEREAL DISEASES.

Early Preventive Treatment.

A CORRESPONDENT has supplied us with these notes on the history of early preventive treatment of venereal disease.

The first experiments seem to have been made by Metchnikoff, who reached the conclusion that an ointment containing not less than 25 per cent. of calomel applied a few hours after exposure to syphilitic infection stopped the development of the disease. An ointment of lesser strength than 25 per cent. of calomel proved inefficacious. The ointment he found best contained 33 parts of calomel, 67 parts of lanoline, and 10 parts of vaseline, and this, with slight modifications, seems to have been employed by all who have subsequently attempted early preventive treatment. For the prevention of gonorrhœa urethral injections of various antiseptics have also been tried, of which 2 per cent. protargol has received the most favour. In 1904 preventive treatment was instituted in the Austrian Army, in 1907 in the French Army, and in other continental armies at about the same time. In the Navy and Army of the United States the method began to be used about 1909, and in the *Military Surgeon* of that year is an account of the issue to soldiers in a depôt in the Philippines of a "prophylactic kit," but no definite figures are given to show the results. Several sets of figures are, however, available to show the success of preventive treatment at various naval and military stations in the United States.

At Jefferson Barracks, Missouri, a military recruiting depôt, compulsory preventive treatment was instituted in August, 1911. It was tried first in one company and proved so far superior to voluntary measures that it was extended in September, 1911, to the entire command. On Jan. 1st, 1912, the depôt commander issued a memorandum to the troops on the subject of venereal diseases and their prevention. "Experience has shown," he says in the course of this memorandum, "that 95 per cent. of cases of venereal disease are preventable if treatment is given a few hours after sexual intercourse." Then follow orders, among them this:—

All enlisted men of the command who expose themselves to the danger of contracting venereal disease ..... will immediately upon return to the Post ..... report at the hospital for preventive treatment. Enlisted men absent from the Post on pass will upon their return and before turning in their passes endorse on the back thereof over their initials whether or not they were exposed to venereal infection during their absence from quarters.

Penalties were attached for non-compliance with these orders.

The results in this depôt are stated as follows: In 1910 the admission rate for venereal disease was 313 per 1000. At this time no inspections were made to discover concealed cases and it is therefore probable that the full number of cases which occurred would give a higher figure. In July, 1911, monthly venereal inspections were begun, so that from this date onwards the admission rate represents the total number of cases, and would almost certainly be higher than hitherto, were preventive treatment ineffective. In September preventive treatment was made compulsory. The admission rate for the whole of 1911 was 250 per 1000, showing a fall of 20 per cent. since 1910. The rate for the last four months alone was 166—scarcely more than half that for 1910, and of these last cases more than 50 per cent. had contracted the disease before enlistment.

The figures for the first six months after prophylaxis was instituted are as follows:—

September, 1911, to February, 1912.

Total venereal admissions.	Old cases (contracted before enlistment, before arrival, or recurrences)	New cases (total).	New cases who had reported for prophylaxis.	New cases who had not reported for prophylaxis	Total prophylactic treatments given.
117	74	43	15	28	1675

Thus of 1675 individual preventive treatments only 15, or 0·84 per cent., proved ineffective.

Similar results are recorded from Fort Washington by Captain Mahlon Ashford of the U.S. Army Medical Corps. He tabulates the results of five months' compulsory prophylaxis as follows.

The number of hours elapsing between exposure to infection and prophylactic treatment as recorded in Column 3 rests necessarily on the soldiers' own statements, and is almost certainly in some cases an under-statement. As this interval is

Month.	Number of prophylactic treatments.	Number of infections after treatment.	Number of hours between exposure and treatment.	Percentage of infections.
Dec., 1913	40	1	5·3	2·5
Jan., 1914	34	3	5·6	5·5
Feb., ,,	40	1	5·1	2·5
March, ,,	57	0	6·4	0·0
April, ,,	50	1	3·8	2·0
5 months' total...	221	6	Av. 5·2	Av. 2·7

of first-rate importance an element of fallacy is present in these statistics. But it is a fallacy which, if corrected, could only make them more convincing, and the results as they stand are good. Of 221 men applying for treatment only 6 developed disease—4 cases of gonorrhœa, 2 of syphilis. Good results are also recorded from the U.S.A. naval hospital at Cavite. Here before prophylaxis was instituted venereal disease accounted for 25–30 per cent. of all admissions. After its institution cases of gonorrhœa fell from a 20–25 per cent. average down to 8 per cent., including in one year 30 cases not protected. Chancroid fell similarly from 2–3 per cent. down to 2 per cent., including 10 cases not protected. Syphilis fell from 20 cases a year down to 1 case, not protected.

All the results so far mentioned appear so good that it is surprising to find the statistics for the whole U.S. Navy unfavourable rather than favourable. These figures, taken from the reports of the Surgeon-General of the U.S. Navy, and covering a total period of 12 years, are set forth by Surgeon R. C. Holcomb, U.S. Navy, as demonstrating that the system has proved a failure. Two periods of six years are considered, one from 1903–08, before prophylaxis was instituted, and one from 1909–14, after it was made nominally compulsory throughout the Navy.

The admission-rates per 1000 for venereal diseases were as follows:—

—	Gonorrhœa.	Chancroid.	Syphilis.
1903–1908	47·23	13·12	22·03
1909–1914	91·91	33·18	23·37

The apparent enormous increase in gonorrhœa and chancroid is largely discounted by the consideration that in 1909 it was ordered that all cases of venereal disease should be admitted for one day to hospital for inspection, and the figures after that date therefore include all cases such as were formerly treated outside hospital. But when all possible deduction is made on this count the figures cannot be made to show any improvement following the institution of preventive treatment. The "damage rate" representing the number of days' work lost owing to venereal disease gives no better results even when corrected for the fallacy stated above. A slight improvement in the figures for syphilis seems amply accounted for by the introduction of salvarsan.

The results so far stated are thus contradictory, showing a very definite success in several military and naval depôts on a comparatively small scale and an equally definite failure in the U.S. Navy over a period of years. This contradiction points to the existence of some factor or factors making for failure in the application of the method in the Navy. The failure can hardly be inherent in the method itself or it could not succeed as it has succeeded both in the laboratory and at military depôts.

Two more sets of figures quoted by Holcomb throw some light on what these factors are. The first set shows the extreme importance of every hour allowed to elapse between exposure to infection and the application of prophylactic treatment.

Thus of 1385 exposures treated within the first 8 hours 19 developed disease, a percentage of 1·37.

Of 74 exposures treated between the eighth and twelfth hours 25 developed disease, a percentage of 33·7.

Of 927 exposures treated between the twelfth and twenty-fourth hours 47 developed disease, a percentage of 5·1.

It may be supposed that in any ship where discipline in this matter was not rigid or where the medical officer was not sufficiently alert a number of men must have received their treatment too late. That this was almost certainly the case is borne out by another set of figures showing, besides the apparent ineffectiveness of the treatment, how large a number of men failed to report for prophylaxis, although nominally compelled to do so. 1338 men were given between them 32,791 "liberties" on shore in the course of 15 months. In this period 3268 preventive treatments were given. Among these men in the 15 months there occurred:—

140 cases of gonorrhœa, 77 of whom had not applied for treatment.

61 cases of chancroid, 26 of whom had not applied for treatment.

15 cases of syphilis, 12 of whom had not applied for treatment.

Thus within 15 months 115 out of 1338 men avoided prophylaxis after exposure and developed venereal disease. This does not indicate a high state of discipline in the matter, and suggests that the treatment may have been carried out carelessly and in a manner distasteful to the men. It must also be remembered that the figures for the whole Navy include not only cases which have avoided preventive treatment, but also some who had already become infected before entering the service. In the U.S. Army it is officially stated that 17 per cent. of recruits are syphilitics at the time of enlistment. The percentage of Navy recruits may be lower, but is probably appreciable, and inspection may well have become more careful since 1908.

It seems fair to conclude that early preventive treatment is a successful method of combating venereal disease subject to the conditions that the treatment is made acceptable to the men and is actually compulsory, and that it is carried out within a very few hours after exposure to infection. Our correspondent suggests that the naval and military authorities in this country would do well to consider the publication of any statistics in their possession bearing on the subject for the guidance of the civilian administrative bodies which are now giving earnest attention to the control of venereal diseases

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Work of the Service de Santé in the Eastern Campaign.

M. Picqué recently dealt with the work of the Service de Santé in the Near East at a meeting of the Academy of Medicine. In the Dardanelles campaign he said that the doctors had to grapple with unheard-of difficulties owing to persistent bombardment by the enemy of the sanitary posts. Doctors and attendants were killed or wounded while at work, and it was necessary to remove the greater number of the wounded to the hospital ships. One field hospital had, nevertheless, dealt with 8500 wounded men, on whom 470 operations were performed. M. Picqué illustrated the very grave difficulties in the transport of wounded from trench to field hospital and on to hospital ship, a service of which he was himself in special charge. He made quite clear the real utility of aid-posts, on which rather too much doubt has been cast by the surgeons, and deduced the necessity of stationing at them experienced surgeons to arrest hæmorrhage and ensure asepsis. In Macedonia the Service de Santé had also encountered grave difficulties. M. Picqué paid a tribute to General Sarrail, for, owing to his coöperation and that of M. Ricotti, chief of the service, the base hospitals alone are in possession of 20,000 beds. The surgical practice is distributed over 9 hospitals, of which 7 are temporary ones, all comfortable, some excellently well equipped, and challenging comparison with similar installations in Paris itself.

Aural Mischief Among Aviators.

At the Paris Society of Medicine Dr. André Castex stated recently that a large proportion of aviators are among the men presenting themselves at the oto-rhino-laryngological consultations of the Military Hospital Villemin in Paris. From a series of observations it appears that on rising to an altitude approaching 1500 metres all the upper respiratory tract (pharynx, nasal passages, and, above all, the ears) become congested. The aviator relieves his discomfort by breathing through the mouth and practising Valsalva's

experiment. At about 4000 metres his troubles disappear, to return on the descent. On landing deafness is present, lasting sometimes a considerable time, and now and then he bleeds from the ears. These disturbances are, of course, due to the variations of atmospheric pressure. As the aviator rises the external pressure is less than that within the tympanum, Eustachian tube, and, possibly, blood-vessels. On the descent this is reversed. His troubles are accentuated if the aviator has some degree of oto-sclerosis or any malformation of the nasal passages, or if he travels in a noisy machine. A little deafness does not prevent a man from being an excellent aviator, but in rising it is a useful precaution to practise Valsalva's and in descending Toynbee's method. Complete rest for a quarter or half an hour is useful upon landing. Persistent aural trouble yields to rest prolonged over a month.

Industrial Accidents and War Wounds.

For slight accidents to operatives engaged in controlled factories the military doctors have hitherto granted seven days' leave for convalescence, following the practice applicable to soldiers wounded at the front. The Under Secretary of State for the Military Service de Santé has recently directed a circular to the local directors of the service, informing them that this procedure is inadmissible. The origin of the wounds is not the same. The wounded soldier is in need of rest and of the moral comfort which a home visit will give him, but the mobilised operative is not subject to the same fatigues and dangers, and as a rule already lives at home. An accident during work implies half-pay at the expense of the employer. The injured operative should therefore resume work as soon as he is restored, since the national defence demands intensified production.

The Prophylaxis of Wound Infections.

Professor Vincent has made a communication on bacterial prophylaxis at the Academy of Medicine. While the wounded man, with his emergency dressing applied at the dressing station, is transported to the field hospital a delay of several hours (from four to eight hours on the average, but often much more) occurs during which bacteria can multiply without hindrance. Sometimes this has already occurred within four or five hours, and in this race between sepsis and surgeon the latter may arrive too late. To prevent this rapid multiplication of bacteria M. Vincent lays down rules of true surgical prophylaxis comparable to those applied to infectious diseases. The surgical future of the wounded man often depends on his first dressing. M. Vincent proposes, therefore, that the wounds should be carefully dredged with a powder composed of 10 parts of hypochlorite of calcium and 90 parts of dry crystallised boric acid. All ramifications are carefully filled up with this powder. For wounds requiring drainage the antiseptic is insufflated into their depths. The application is very simple and produces no pain. A dry dressing of this kind brings the wounded man to the operating table in practically the condition he was in when struck down in the firing line.

Unshapely Noses Corrected Surgically without Scar.

M. Julien Bourguet reports success in correcting all ungraceful forms of nose, leaving the skin intact. He classifies unshapely noses into five principal groups: blobby, crooked, saddle-shaped, long, and broad. To improve them M. Bourguet operates through the nares under local anæsthesia, separating the skin from the subjacent framework, removing exuberant bone and cartilage by means of a small saw or a file in the case of bosses, and reapplying skin and subcutaneous tissue to the amended framework. In noses which deviate from the straight M. Bourguet luxates the nasal bones, and after fracturing the perpendicular plate of the ethmoid accurately centres the nasal framework, holding it in position by means of an intranasal splint or an external dressing until consolidation is complete. Saddle-backed noses are corrected by taking a fragment of the required size from the tibial crest enveloped in its periosteum and grafting it under the skin of the nose. In dealing with a nose that is too long M. Bourguet removes a triangular piece of the septum and triangular cartilage so as to restore the nose to its normal proportions. Finally, he corrects noses that are too broad by bringing together the ascending processes of the maxilla towards the mesial line, and removing a portion of the cartilage of the ala. After disappearance of the œdema transformation is complete without a vestige of scar.

Obituary.

WALTER HAMILTON HYLTON JESSOP, M.A., M.B. CANTAB., F.R.C.S. ENG.,

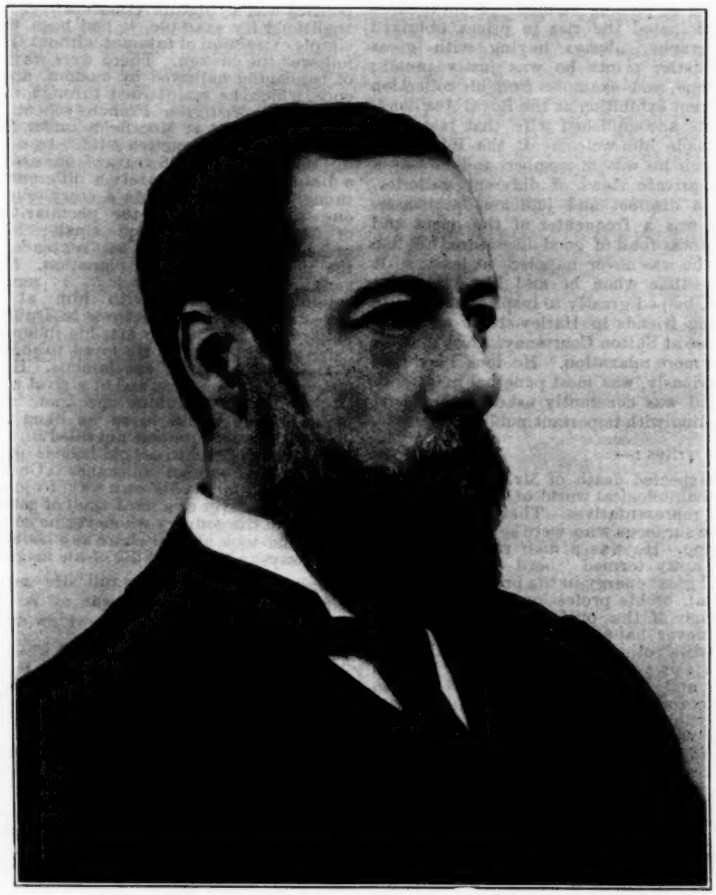
PRESIDENT OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM AND SENIOR OPHTHALMIC SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

IT is with very great regret that we have to announce the death on Friday last, Feb. 16th, of Mr. Walter H. H. Jessop from pneumonia after a short illness. Little more than a week ago he was apparently in excellent health, full of the energy and almost youthful spirits with which his friends were so familiar. It is doubtful, however, if before he was attacked with the fell disease to which he succumbed he was in as healthy a state as his natural buoyancy seemed to indicate. Ever since the beginning of the war he had given himself unsparingly to the services of wounded soldiers at No. 1 General Hospital, Camberwell, and elsewhere, in addition to the performance of his ordinary duties at St. Bartholomew's Hospital and at home. Moreover, as we shall have occasion to mention later, he was enthusiastically engaged upon several schemes for the organisation and advancement of British ophthalmology, all of which entailed heavy labours, such as would have tired out a much younger man. A recent appreciation of the late Duke of Norfolk has said that "he died 70 years young." It is equally appropriate to say that Jessop died 64 years young, for he was young in his physical strength, young in his thoughts, his enthusiasms, his aspirations, and even in his foibles. Some years ago he had a very serious motor accident, and it may be that he was never quite the same man after it. Yet there was little evidence of such being the case, and if he felt shaken he concealed it successfully even from his intimate acquaintances.

Walter Jessop was born in 1853, being the son of Walter Jessop, F.R.C.S., of Cheltenham. He was educated at the College, Cheltenham, until his father's death, when he was transferred to the Modern School, Bedford, where he gained the Harpur exhibition of £200. He then started working for the Indian Civil Service, but in 1871, having won the valuable Tancred studentship in medicine, which is held at Gonville and Caius College, Cambridge, he proceeded to that College. In 1876 he graduated in Arts at Cambridge, and joined the medical school of St. Bartholomew's Hospital for the completion of his medical studies. He became a Member of the Royal College of Surgeons of England in 1880, and four years later took the Fellowship, graduating also in medicine at Cambridge. He joined the teaching staff of St. Bartholomew's Hospital in 1882 as demonstrator of anatomy, and remained in the dissecting rooms of the hospital for nearly 13 years. He proved himself an excellent teacher, and was, moreover, though strict, popular with the students. At this time, in spite of early evidences as to the direction which his energies would take, his actual professional future was uncertain, owing to the long period before any vacancy occurred at St. Bartholomew's for an ophthalmic surgeon. But in 1894, on the resignation of Mr. Henry Power, he became junior ophthalmic surgeon to the hospital, the holder of that post, Mr. Bowater Vernon, taking Mr. Power's appointment. He had already been elected surgeon to the Central London Ophthalmic Hospital and ophthalmic surgeon to Paddington Green Children's Hospital. His election to the staff of St. Bartholomew's Hospital, though warmly contested, had already been amply justified. In 1885, soon after the introduction of cocaine by Koller, Jessop made an exhaustive research on the action of this drug on the eye. It was a painstaking and well-executed piece of work, and the conclusions at which he arrived have been confirmed by all later observers. Henceforth he devoted himself to the clinical aspects of his special subject, but these papers on cocaine prove that, had he been so minded, he would probably have been successful in more purely scientific research. In 1887 and 1888 he delivered the Hunterian Lectures at the Royal College of Surgeons of England, taking for his subject the anatomy and physiology of the intraocular muscles, and in the latter year he made a communication on the same subject to the International Ophthalmic Congress. From 1885 until his death every volume of the Transactions of the Ophthalmological

Society contains papers and communications from his pen. It is true that they consist chiefly of reports of cases and contributions to discussions, but they combine to show a vast knowledge of ophthalmology and an eminently level-headed clinical acumen. He was always abreast of the times, and never more so than in the last years of his life. This fact is borne out by his recent communications to medical societies on war injuries of the eye, trench nephritis, and other cognate subjects. In addition to contributions to societies and medical journals Jessop wrote articles on ophthalmic subjects in various surgical text-books, while in 1898 he published an excellent manual on "Diseases of the Eye," of which a second edition appeared in 1908.

It would be wholly unjust, however, to judge Jessop's place in British ophthalmology by his writings only, for he was not a ready writer. As a matter of fact, he made a unique position for himself. Filled with a patriotic desire to advance British ophthalmology and to proclaim and insist upon its just recognition by other nations he constituted himself an international intermediary. He was a member of the Belgian, Spanish, and American Ophthalmological Societies *honoris causâ*, and also an honorary member of the Budapest Medical Society in his capacity as an ophthalmologist. There was scarcely an International Congress of Medicine or Ophthalmology which he did not attend, and he was frequently present at the annual meetings of the Heidelberg and Paris societies, nearly always of recent years being voted to take the chair at one of the sessions. No one in England knew more continental ophthalmologists and many of them were his intimate friends. His home was always at their disposal, and Landolt, Straub, Axenfeld, and a host of others were often his guests. It was one of his greatest foreign friends, Professor Straub, of Amsterdam, who suggested to Jessop that the war had knelled the doom of German ophthalmic literature. The ophthalmic surgeons of neutral countries, who had been accustomed to send their papers to German journals, were now deprived of an international medium of publication. Jessop, who had so soon to deplore the loss of his friend, seized upon the opportunity then presented. In 1915 he was elected President of the Ophthalmological Society. He immediately made use of this commanding position to further the project of a single all-embracing and thoroughly representative British Journal of Ophthalmology. He lived to see the venture launched most successfully. He worked day and night for the new journal from the time of the inception of the idea to the very day when illness prostrated him. If British ophthalmologists wish to erect a monument to him, *ære perennius*, none could be more appropriate than to make the journal in every respect worthy of the high ideals which he set before them. The suggestion that the existing British journals of ophthalmology be amalgamated with a view of forming a representative periodical, though it originated from Straub, was seized upon by Jessop with characteristic foresight and energy. He personally wrote to most of the senior members of the Ophthalmological Society, suggesting the establishment of a really representative British Journal of Ophthalmology at or before the termination of the war, and called a meeting at his house in Harley-street last summer. The idea was then approved, and a sub-committee of seven was formed to make arrangements with the existing ophthalmological journals as regards amalgamation, and to draw up a definite scheme. The sub-committee met on several occasions, and reported that a limited liability company with a capital of £5000 should be formed to publish such a journal, which should incorporate the *Royal London Ophthalmic Hospital Reports*, the *Ophthalmic Review* and the *Ophthalmoscope*. Further recommendations were that the shares in the company be held only by registered members of the medical profession and that no transfer of shares be registered without the consent of the directors. This report was approved by the original committee and a general meeting of ophthalmologists to consider the proposals was called at the house of the Royal Society of Medicine towards the end of September. Jessop, who was appointed managing director of the new company, threw himself heart and soul into the onerous work of inaugurating the Journal, and it can scarcely be doubted that in doing so he severely taxed his strength.



WALTER H. H. JESSOP, M.A., M.B. CANTAB., F.R.C.S. ENG.,
PRESIDENT OF THE OPHTHALMOLOGICAL SOCIETY.

As President of the Ophthalmological Society he took a paternal interest in the Bowman Library, which was founded by the society. But when the Section of Ophthalmology of the Royal Society of Medicine came into existence, and changes in the constitution of the Ophthalmological Society occurred, the latter body generously handed the Bowman Library over to the safe keeping of the Royal Society of Medicine. Jessop was elected librarian of the Bowman Collection, and he had already, with his usual vigour, commenced to fill the lacunæ upon its shelves. At the time of his death he was engaged upon this, and also upon another and larger piece of work, for the welfare of ophthalmology. In addition to the annual meeting of the Ophthalmological Society, which has

become an annual congress, there is another ophthalmological congress which meets yearly at Oxford, and there are several small ophthalmological societies scattered over the United Kingdom. It was his object to affiliate them all to the old society in order that there might be greater unity of purpose and that all should be permeated with the same spirit of goodwill. We understand that the negotiations to this end were proceeding satisfactorily, and we hope that loyalty to the lost leader will be an additional incentive to bringing them to the conclusion which he would have wished.

It remains to say a few words about Jessop the man. He was a man of the world in the best sense of the term. We have spoken of his perennial youth, his energy, and his *bonhomie*. His tastes were wide. He delighted in art and had an excellent judgment. He was a recognised connoisseur of certain modern artistic work. Of all kinds of painting he was an appreciative critic and sometimes a pioneer, being quite uninfluenced by popular or passing fashion. From instinct as a collector he anticipated the rise in prices obtained for prints and lithographs, always buying with great prudence. Of his Whistler prints he was justly proud; some of them are unique, and examples from his collection may be seen at the current exhibition at the Royal Academy. Jessop shared with his accomplished wife that taste and discrimination which made him welcome at the Burlington Fine Arts Club, of which he was a member, and he was a familiar figure at the private views of different galleries, where he was often a discreet and judicious purchaser. He loved music, and was a frequenter of the opera and classical concerts. He was fond of good literature, English and foreign. Perhaps he was never happier—at least, so it seemed to his guests—than when he and his wife, who shared, and, it may be, helped greatly to inspire, his artistic tastes, were entertaining friends in Harley-street or at his charming riverside house at Sutton Courtenay. Not that his country life was one of mere relaxation. He took his duties as a magistrate very seriously, was most punctual in attendance at the Bench, and was constantly asked to serve on special committees dealing with important public business.

Mr. Treacher Collins writes :—

The sudden and unexpected death of Mr. Walter Jessop has deprived the ophthalmological world of one of its most prominent and leading representatives. There are probably few British ophthalmic surgeons who were so widely known and esteemed as Jessop. He was a man richly endowed with what has been aptly termed "herd instinct." He devoted much time and great energy in the promotion of the interests of his hospital, of his profession, and more particularly of that branch of the profession in which he specialised. He was never happier than when he found himself associated with others in the promotion of mutual interests. In the years before the war he was constantly flitting to and fro to different parts of the continent to attend meetings of the numerous ophthalmological societies with which he was connected, and over those proceedings he was frequently invited to preside. Quick to take up new ideas, and with a keen appreciation of what was good, he brought back from these meetings valuable information which he was always ready to impart to his less cosmopolitan colleagues. Jessop was reaching that time of life when an ophthalmic surgeon's methods and opinions tend to become more reminiscent of the past than in accordance with new ideas. Anyone, however, who conversed with him on professional subjects soon came to recognise that there was nothing of the back number about him. Though not naturally a fluent speaker, having a peculiar jerky manner of delivery, his instinctive sympathy with the feelings of his fellows was so great that he was often able to expound in a telling and forcible way the ideas which they desired to have expressed. It was this same instinctive sympathy which made him such an agreeable host and such a successful organiser. His generous hospitality at his house in Harley-street, which was at one time the residence of Mr. Gladstone, will long be remembered by many of his colleagues. Jessop was certainly seen at his best at the head of his table surrounded by leading ophthalmologists from all parts of Europe. Keenly appreciative of humour and anecdote, he had the happy knack of grouping his guests and drawing them out so as to promote the general interest and enjoyment. Never were Jessop's tactful energy and powers of organisation so conspicuously manifested as in the latter years of his life. In 1915 he was elected President of the Ophthalmological Society of the United Kingdom, in the welfare and proceedings of which he had always taken a lively and active interest. On the assumption of the office of President his exertions on its behalf became redoubled, with the result that, notwithstanding the war, its annual congress of three days last year was by common consent regarded as the most interesting and successful that it has held.

Mr. Holmes Spicer writes :—

From the time he left Cambridge perhaps the greatest interest in Jessop's life was St. Bartholomew's Hospital. After serving on the junior staff he was elected demonstrator of anatomy in 1882, which post he retained till he became ophthalmic surgeon in 1894. It was during this time that he made life-long friendships with colleagues such as Bruce Clarke and Lockwood, both of whom are now gone, but also with successive generations of Bart's, men who owed much to his teaching. Life at this time was a struggle, there was no clear opening before him, it needed courage and tenacity to succeed. His election at Bart's was strongly contested, and it was only later that success came to him: with it the sunnier side of his nature developed, and his real character showed itself. There was a tradition in the eye department at St. Bartholomew's, and Jessop, who, though a Liberal in politics was by nature Conservative, set great store by the tradition; for example, it had been the custom to do the simple extraction of cataract without iridectomy, and Jessop followed the custom. There were ways of treatment, tricks of bandaging hallowed by custom, and justified by experience, which he maintained through life. As a surgeon he rather followed the French school. He had received austere training at Moorfields under Nettleship and others which made his practice solid. As a colleague I can only say that during the 16 years of our association we never had a disagreement, and rarely a difference of opinion; he was thoughtful and kind. As a story-teller he could entertain one for hours with the peculiarities and weaknesses of the world great and small; his method was impressionistic—a word, a half-sentence, or a smile supplied the place of lengthy explanation. His love of art was genuine and enthusiastic. I remember spending a delightful afternoon with him at Sir Hugh Lane's collection of modern pictures in Dublin; although he did not himself practise any art, his judgment, taste, and knowledge were excellent. He loved to show his collections; his Whistler lithographs are famous. He would tell of the jealousies of collectors, and of a rival who, after offering very large sums for a unique specimen, finally handed him a blank cheque to fill in as he liked in exchange for the picture; that cheque was not filled in. At his country home he was always glad to see old friends or pupils, or to welcome distinguished foreign colleagues. Under his roof the guest was free to follow his own way, to join him in a morning swim in the river or a hard spell of gardening. He lived the free life of the country whenever he could get away from his work, and took his full share as a country magistrate and in other ways in the social life of his neighbourhood.

Walter Jessop lived a full life and has died almost suddenly when that life was at its fullest. The utmost sympathy will go out to his widow and daughter on their great loss.

CLAUDE LAMONT WHEELER, A.B., M.D.,

EDITOR OF THE "NEW YORK MEDICAL JOURNAL."

Dr. C. L. Wheeler died at his residence, Brooklyn, N.Y., on Dec. 30th, aged 52.

Claude Lamont Wheeler was born in Montreal on March 5th, 1864, the son of Dr. Thomas Brown Wheeler, and a nephew of William Wheeler, a former Governor of the State of Rhode Island. He took his degree in Arts at Laval University in Quebec, and graduated in medicine from McGill University, Montreal, in 1889. Twenty-six years ago he went to New York, and in 1902 he joined the editorial staff of the *New York Medical Journal*, then under the control of Dr. Frank P. Foster, the well-known writer on medical and literary subjects. Dr. Kenneth W. Millican, the late assistant editor of THE LANCET, was associated with Dr. Wheeler in the editorial work of the journal before returning to this country and joining our staff. In 1911, on the death of Dr. Foster, Dr. Charles E. de M. Sajous, of Philadelphia, and Dr. Wheeler became associated in the editorship. During his six years' tenure of the editorship Dr. Wheeler not only maintained the high standard of the *New York Medical Journal*, but in many directions greatly improved that publication. He was peculiarly well adapted for the position of a medical editor. While his medical knowledge was extensive, his literary gifts were even more conspicuous. He possessed the literary instinct, which was supplemented by a high degree of culture. He was extremely well versed in classical literature, and as a writer he was concise in language and distinguished in style. Moreover, he was an excellent judge of the writings of other people. He knew

several languages, including French, German, Italian, and Spanish, and possessed a somewhat remarkable knowledge of Greek and Latin. To these advantages may be added those of a fine presence, engaging manners, and great tact. Dr. Wheeler was a very versatile man and of a distinctly artistic temperament. He was an amateur actor with decided histrionic gifts, a vocalist with an exceptionally good and well-trained voice, and an accomplished pianist.

Dr. Wheeler had been in failing health for a year or more, but up to within a few days of his death had strictly attended to his editorial duties. He may be said almost to have died in harness. Dr. Wheeler leaves a widow and young daughter.

EDUARD HAGENBACH,

PROFESSOR OF CHILDREN'S DISEASES IN THE UNIVERSITY OF BASLE.

Eduard Hagenbach, who died recently in Basle at the age of 76, had occupied for 44 years the University chair of pediatrics, which had been specially created for him. The son and grandson of distinguished medical men in the cathedral city on the Rhine, he obtained his medical qualification at the moment when Streckeisen's indefatigable labour had resulted in providing Basle with a children's hospital and attached teaching school, the first of its kind in Switzerland; and after varied experience in Paris and elsewhere Hagenbach succeeded Streckeisen as chief of the children's hospital. To this and to the well-being in general of the child Hagenbach devoted his life. A colleague says of him: "He understood the soul of the child as hardly another did, and his manner of dealing with children was full of charm, his small patients responding with warm affection in return." The crèches, the infant welfare centres, the children's convalescent homes in and near the city were all due to his strenuous advocacy through good and evil report. He gave many public lectures and contributed alone or with his pupils more than 150 articles on childish ailments to the medical press, chapters on rickets and whooping-cough being among his larger works. He was an enemy of all slipshod methods, and his writings were characterised by care and precision. But more than by these, his memory will be kept alive by the infant welfare movement in Switzerland, of which he was the pioneer.

THE LATE MR. F. P. LANSDOWN.—Francis Poole Lansdown, M.R.C.S., L.S.A., honorary consulting surgeon to the Bristol General Hospital, died at his residence at Lydford, Devon, on Feb. 12th, in his 84th year. He had retired from active work for several years, but at one time he had an extensive practice in Bristol and Clifton. He was on the honorary surgical staff of the Bristol General Hospital and formerly lectured on anatomy at the Medical School. He was Surgeon Lieutenant-Colonel (V.D.) of the 1st Gloucester Artillery Volunteers. Mr. Lansdown was much esteemed in Bristol and the district. He leaves a widow and a son, Mr. R. G. P. Lansdown, who is honorary surgeon to the Bristol General Hospital.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

August 31st, 1916.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Carbonaceous other than tar	Ash.	Soluble matter. Loss on ignition.	Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
Exeter	120	0·01	1·01	3·02	2·41	3·85	10·30	1·55	0·42	0·03
Leicester	66	0·09	2·81	6·61	1·73	3·04	14·29	1·55	0·46	0·16
London—										
Meteorological Office	138	0·05	2·67	3·41	1·66	3·88	11·63	2·19	1·27	0·13
Embankment Gardens*	—	—	—	—	—	—	—	—	—	—
Finsbury Park ...	115	0·08	1·44	7·95	2·29	5·01	16·77	2·07	0·13	0·06
Ravenscourt Park	124	0·17	2·75	7·82	2·29	5·57	18·60	2·62	0·70	0·20
Southwark Park	86	0·06	2·49	7·83	1·88	3·91	16·16	1·95	0·65	0·10
Victoria Park ...	83	0·30	4·30	6·80	1·99	5·45	18·44	1·44	0·60	0·09
Wandsworth Com.	60	0·01	3·56	13·01	4·12	6·50	27·20	2·78	0·68	0·12
Golden Lane ...	118	0·08	2·16	3·78	3·32	2·37	11·70	3·01	0·97	0·31
Malvern	62	Tr.	0·20	0·23	0·62	1·46	2·52	0·69	0·15	0·02
Manchester—										
Queen's Park ...	44	—	—	—	—	—	11·00	—	—	—
School of Technology	43	—	—	—	—	—	18·20	—	—	—
Newcastle-on-Tyne	67	0·28	5·10	10·14	2·83	5·80	24·15	2·59	0	0·13
Rochdale	—	—	—	—	—	—	27·0	—	—	—
York	78	0·08	1·31	2·98	2·40	4·24	11·01	1·53	0·33	0·04
SCOTLAND.										
Coatbridge	78	0·07	1·95	6·66	2·19	0·94	11·81	1·56	0 67	0·14
Greenock	80	0·30	1·39	3 01	0·95	2 87	8·52	1·24	0·10	0·10

Sept. 30th, 1916.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Carbonaceous other than tar	Ash.	Soluble matter. Loss on ignition.	Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
Exeter	67	0 02	0·90	2·56	0·70	2·31	6·49	0·87	0·34	0·03
Leicester	42	0·09	3·33	4·23	0·84	2·01	10·50	0·88	0·27	0·08
London—										
Meteorological Office	48	0·04	1·83	2·26	3·30	4·38	11·80	1·32	0·57	0·04
Embankment Gardens†	3	0·15	2·08	1·94	1·56	3·67	9·38	0·70	0·49	0·07
Finsbury Park ...	39	0·07	1·12	3·55	0·70	2·78	8·22	1·86	0·34	0·06
Ravenscourt Park	47	0·20	2·13	4·29	1·12	4·54	12·28	1·89	0·44	0·07
Southwark Park	29	0·05	3·70	8·11	2·84	6·39	21·09	3·57	0·49	0·10
Victoria Park ...	13	0·06	1·40	5·08	0·42	0·74	7·71	0·26	0·11	0·02
Wandsworth Com.	13	—	0·15	0·61	0·52	1·33	2·61	0·60	0·16	0·02
Golden Lane ...	38	0·06	2·50	3·81	1·82	3·94	12·12	2·03	0·44	0·20
Malvern	29	—	0·23	0·23	0·36	0·82	1·64	0·39	0·08	0·03
Manchester—										
Queen's Park ...	65	—	—	—	—	—	12·50	—	—	—
School of Technology	58	—	—	—	—	—	19·70	—	—	—
Newcastle-on-Tyne	34	0·30	3·71	6·84	0·96	3·71	15·51	1·73	0·24	0 66
Rochdale	—	—	—	—	—	—	20·5	—	—	—
York	24	1·05	0·26	0 58	0·62	2·09	3·60	0·99	0·22	0·03
SCOTLAND.										
Coatbridge	29	0·03	0·44	1·00	0·81	2·35	4·63	0·92	0·22	0·07
Greenock	50	0·15	1·30	3·15	1·92	3·42	9·93	1·69	0·23	0·10

* No returns. Tr. = trace. † Collected from 20th only.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) one gramme per sq. metre; (*d*) 1/1000 millimetre of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables.

ABERDEEN ROYAL INFIRMARY: ANNUAL REPORT.—The annual report of the Aberdeen Royal Infirmary for 1916 states that during the year 3235 in-patients and 14,572 out-patients received treatment, 94 more in-patients and 678 fewer out-patients than last year. The average number of beds in daily occupation was 238, and the average number of days in hospital of each patient was 27. The death-rate was approximately 6·6 per cent. of cases treated. Deducting the deaths which occurred within 48 hours of the patient's admission, the death-rate was reduced to about 4·8 per cent., as against 5·1 in 1915. There was an increase of £1367 in the ordinary income, but a decrease in patient's payments was regrettably noted. The ordinary expenditure was £1824 more than in the previous year, the added cost of butcher meat, milk, sugar, and coal accounting for practically the whole of that sum. The average cost per occupied bed was calculated to be £72 2*s.* 1*d.* and of each in-patient treated to be £5 3*s.* 2*d.* The board recorded their deep regret for the death of Dr. Arthur Hugh Lister, which occurred on July 17th on his way home from Egypt, where he had been on military duty. Dr. Lister had been a member of the honorary staff of the infirmary from March, 1897, as an assistant physician and after as a physician. In addition to his infirmary work, in which he displayed great fidelity and zeal, he rendered conspicuous service in the investigation and treatment of tuberculosis.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue :—

Died.

Lieut.-Col. J. F. Flasham, Australian Army Medical Corps, qualified at Sydney University in 1894 and was in practice in Macquarie-street, Sydney, New South Wales, prior to joining the Expeditionary Force.

Previously reported Missing, believed Drowned, now reported Drowned.

Lieut. J. Cropper, R.A.M.C. (see THE LANCET, Dec. 16th, 1916, p. 1034).

Wounded.

Capt. A. H. Ernst, R.A.M.C., attached Royal Engineers.
Capt. C. W. C. Robinson, R.A.M.C.
Lieut. W. J. Pearson, R.A.M.C., attached Royal Flying Corps.
Capt. W. M. Badenoch, R.A.M.C., attached Welsh Regiment.
Capt. J. H. Cuthbert, R.A.M.C., attached Royal Field Artillery.
Lieut. J. M. Hammond, R.A.M.C., attached Devon Regiment.

OBITUARY OF THE WAR.

RUSSELL ELIOTT WOOD, M.D., C.M., F.R.C.S. EDIN.,

LIEUTENANT-COLONEL, ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. E. Wood, whose death occurred suddenly at Dunbar on Feb. 9th, came of a family long distinguished in the medical annals of Edinburgh. He was educated at the Edinburgh Academy, where he took a keen interest in athletes, afterwards graduating M.B., C.M. at Edinburgh University, later taking the Fellowship of the Royal College of Surgeons of Edinburgh, on the President's Council of which he served. He was also on the governing board of the School of Medicine of the College, and an examiner for the triple qualification. He held many appointments, and up to the time of his death was visiting physician to Donaldson's Hospital, Edinburgh. In his early days he served in the Zulu War, and as medical officer to the Lanarkshire Yeomanry had maintained his connexion with the Army, rising to the rank of Surgeon Lieutenant-Colonel. Shortly after the outbreak of war he volunteered his services and was appointed to his old regiment.

Writing of Colonel Wood, a friend and colleague says of him : "He was genial and kind-hearted, an excellent practitioner, a keen sportsman, and a loyal friend. He will be sorely missed."

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war :—

Second Lieut. J. H. W. Stevenson, C.S.I., J.P., Indian Army, younger son of Surgeon-General Stevenson, of Castletown, Isle of Man.
Capt. F. W. H. Simpson, Royal Garrison Artillery, attached Royal Flying Corps, only son of Professor W. J. R. Simpson, C.M.G., of Regent's Park, London.
Lieut. J. St. E. Cardew, R.N. (retired), younger son of Mr. G. A. Cardew, M.R.C.S., of Cheltenham.

THE HONOURS LIST.

The following promotions of and awards to medical officers are announced :—

C.M.G.—Col. P. Hehir, C.B., I.M.S.
To be Brevet Colonels.—Lt.-Col. W. G. Beyts, R.A.M.C.; Lt.-Col. L. P. More, R.A.M.C.
To be Brevet-Lieutenant-Colonels.—Maj. A. W. C. Young, I.M.S.; Maj. F. A. F. Barnardo, I.M.S.
Bar to Military Cross.—Temp. Capt. A. C. Hancock, M.C., R.A.M.C.

Foreign Decorations.

The names of the following medical officers appear in a lengthy list of decorations awarded by the Allied Powers at various dates to the British forces for distinguished services rendered during the course of the campaign, which the King has given unrestricted permission to wear :—

By the Emperor of Russia.

Order of St. Anne, 3rd Class (with Swords).—Col. Gerald Cree, C.M.G., A.M.S.

By the King of Serbia.

Order of the White Eagle, 2nd Class (with Swords).—Surg.-Gen. Francis Harper Treherne, C.M.G.
Order of the White Eagle, 3rd Class (with Swords).—Lt.-Col. (temp. Col.) A. E. C. Keble, D.S.O., R.A.M.C.
Order of the White Eagle, 4th Class (with Swords).—Maj. R. W. Knox, D.S.O., I.M.S.; Maj. R. S. McGregor, Aust. A.M.C.; Lt.-Col. J. R. Whalt, R.A.M.C.; Maj. R. J. Bradley, I.M.S.; Lt.-Col. (temp. Col.) D. J. Collins, R.A.M.C.; Maj. W. S. Patton, I.M.S.; Lt.-Col. R. R. Sleman, R.A.M.C.
Order of the White Eagle, 5th Class (with Swords).—Capt. H. J. M. Curtsejee, I.M.S.; Capt. J. G. P. Hosken, R.A.M.C.; Capt. W. R. C. Mainwaring, Aust. A.M.C., attached Aust. Light Horse; Temp. Capt. R. A. Mansell, R.A.M.C.; Capt. R. Proudfoot, R.A.M.C.; Capt. H. G. Trayer, R.A.M.C.; Capt. (temp. Lt.-Col.) H. Wade, R.A.M.C.; Capt. (temp. Maj.) E. T. Burke, R.A.M.C., Spec. Res.; Capt. H. Falk, I.M.S.; Capt. E. S. Goss, I.M.S.; Capt. V. B. Green-Armytage, I.M.S.; Lt. N. S. Jatar, I.M.S.; Temp. Capt. J. A. Arkwright, R.A.M.C.; Capt. R. C. Carlyle, R.A.M.C.; Capt. (temp. Maj.) E. L. Rowse, R.A.M.C.

By the King of the Belgians.

Officier de l'Ordre de la Couronne.—Temp. Maj. H. S. Souttar R.A.M.C.

THE CENTRAL MEDICAL WAR COMMITTEE.

At a meeting of the Central Medical War Committee on Feb. 21st the chairman, Mr. Verrall, speaking on the question of the immediate outlook in respect of additional doctors for the Army, and particularly in regard to the matter of calling up the whole or part of the enrolled men, said that some new departure would, in his opinion, have to be made, because even if the enrolled men were immediately called up there would not be obtained the numbers demanded by the War Office. A statement was made by Dr. Buttar, the chairman of the Executive Subcommittee, in the course of which he urged that every effort should, in the first place, be made to obtain the last man possible from those of military age. He considered that there were several reasons for postponing an immediate call upon enrolled men, in view of the possible development of the scheme of the Director-General of National Service and the proposal which was in the air to make a general call for national service upon all classes of the population under the age of 50. He thought that it would be well to take an early opportunity of reviewing the War Office demands in the light of recent developments.

The Committee discussed again the question whether the whole-time service of the country had contributed their fair quota of medical recruits to the Army. It was reported that an interview had taken place with representatives of the Local Government Board and the Board of Education, when facts were brought forward showing that in respect of the Poor-law Service the Local Government Board did not feel itself in a position to make any further serious calls, while it had already spared a large number of whole-time officers on the public health side. Readiness was expressed both by the Local Government Board and the Board of Education to consider any individual calls which the Committee might think it necessary to make upon their officers, but it was pointed out that the Boards had no power to call up medical men in the employment of local authorities, although they were willing to represent to such authorities the need for making the necessary sacrifices.

Finally, the Committee instructed the Executive Subcommittee to inquire carefully into the matter of the enrolled men, and to report to the full Committee on the question of notifying Local Medical War Committees that the necessity of calling upon enrolled men might arise in the near future, indicating in each case the number that it was estimated ought to be supplied from the area.

THE DISABLED SAILOR AND SOLDIER.

At the third Galton anniversary meeting on Feb. 16th Major Leonard Darwin, while admitting that the greatest eugenic task of all lay in promoting the early return to work after the war of the uninjured man, pointed out the need of the British Empire for the fine qualities of courage, endurance, and patriotism shown by the men of our volunteer armies. It was necessary to ensure that the men who returned disabled from abroad should have at least an equal opportunity with those, who had proved unfit to serve in the Navy or Army, of forming homes and passing on their good qualities to future generations. The hardships to be endured during active military service were such that even the soundest of men were liable to suffer from disease, but those men discharged for disease contracted at the front were nevertheless, as a class, capable of handing on a strong constitution to their children.

The subject of the manual training of the disabled soldier in military hospitals came up last week in Parliament, when Lord H. Cavendish-Bentinck asked the Under Secretary for War whether with reference to a recent Army Council Instruction ordering the discontinuance in military and auxiliary hospitals, convalescent camps, and command depôts of instruction in trades and occupations, workshops, and poultry-farms, he would state the reason for this order, putting an end to teaching which was very beneficial to the mental and bodily health of the patients. Mr. Macpherson, in reply, regretted that no hope could be held out of the order being reconsidered. Hospitals, convalescent camps, and command depôts generally, if they were to fulfil their proper functions of getting the men fit for discharge as quickly as possible, and so setting the accommodation free for other patients, must be entirely devoted to the purposes of medical treatment. There were, he added, special hospitals where manual training formed part of the sanctioned system of curative treatment. In the debate on the Consolidated Fund Bill, Lord H. Cavendish-Bentinck returned to the subject and said:—

There ought to be a complete system of out-patient treatment of discharged soldiers. It should not be beyond the resources of the Army authorities to provide accommodation both for the freshly wounded and for those recently convalescent in order that they might get perfectly cured. He could not help thinking that the War Office had taken a retrograde and reactionary step in issuing an instruction abolishing all the trade schools and classes in hospitals and auxiliary hospitals. It had gone so far as to forbid people in charge of hospitals keeping poultry. People used, he said, to rely on mechano-therapy, but it was now being found that disabled men could be restored better by technical training than by mechanical appliances. It had further been discovered that there was no likelier way to restore a man suffering from shell-shock and nervous disorders than to give him some useful occupation. It was deplorable if the Army authorities were to abolish the attempt of giving men like this something to do. If the Statutory Committee had been able to organise a perfect system of training the case would be different.

THE ARMY AUTHORITIES AND INCURABLE SOLDIERS.—Our Dublin Correspondent writes: Some weeks ago the committee of management of the Royal Hospital for Incurables, Dublin, wrote to the Government authorities suggesting the establishment of a Government hospital in Ireland for the care of sailors and soldiers who had become afflicted by incurable diseases as the result of war conditions. At its last meeting the committee had under consideration a reply received from Surgeon-General Sir Richard Ford, D.D.M.S., Irish Command. He wrote that the establishment of a special hospital for the purpose suggested would entail considerable expense and might not be necessary. As an alternative, arrangements were being made with the Red Cross authorities to send incurable soldiers to the several county infirmaries, the cost of their maintenance to be borne by the Red Cross funds. The committee of management of the Royal Hospital for Incurables has published a strong protest against this proposal, which, on every ground, seems to be unsuitable. The county infirmaries are active surgical hospitals, quite unfitted to serve as permanent homes for incurable patients, whose presence, moreover, would interfere with the normal working of the infirmary. For another reason the proposal appears even more improper. There is no justification for the attempt to shift the responsibility for the care of incurable soldiers from the Army authorities to a voluntary fund. Men who have been so unfortunate as to suffer permanent disability as a result of war service are entitled to the security of maintenance by the State, and are not to be put off as mendicants dependent on voluntary charity. It is generally felt that if the scheme outlined by Surgeon-General Ford is persisted in the county infirmaries will prove only half-way houses to the workhouse wards.

HEALTH OF THE GERMAN ARMY.—To the wireless summary of the health statistics of the German Army, given in THE LANCET of Jan. 20th, p. 126, during the first two years of war, we can now add the actual official figures of illness per 1000 of the actual strength:—

	1st year.	2nd yea		1st year.	2nd year.
Small-pox	0·01	0·00	Measles...	0·07	0·06
Typhoid	5·60	1·40	Diphtheria	0·24	0·57
Typhus	0·03	0·08	Tuberculosis ...	2·90	1·70
Dysentery	2·80	1·80	Pneumonia	6·80	4·00
Asiatic cholera ...	0·32	0·24	Pleurisy	7·70	6·00
Recurrent fever ...	0·17	0·80	Nerve diseases ...	24·30	21·50
Scarlet fever ...	0·18	0·15			

The only diseases in the list showing any increase are typhus (nearly trebled), recurrent fever (nearly quintupled), and diphtheria (more than doubled). The last named has had the same increased prevalence among the civilian population.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Majors (acting Lieutenant-Colonels) relinquishing their acting rank on reposting: W. J. P. Adye-Curran, W. F. H. Vaughan.

Major H. H. A. Emerson, D.S.O., to be Acting Lieutenant-Colonel whilst in command of a Casualty Clearing Station.

To be Acting Lieutenant-Colonels whilst in command of a Field Ambulance: Major J. P. Silver, D.S.O., Capt. (Acting Major) W. J. E. Bell, D.S.O., Capt. R. B. Phillipps, Major G. W. G. Hughes, D.S.O., Capt. A. I. Fortescue.

To be Acting Lieutenant-Colonels whilst in command of a Stationary Hospital: Major M. Sinclair, Major R. B. Ainsworth, D.S.O.

To be temporary Lieutenant-Colonels: Lieut.-Col. Sir Ronald Ross, K.C.B. (Major, retired, I.M.S.), J. W. W. Stephens, Temp. Major R. E. Kelly (Captain, R.A.M.C., T.F.).

Temp. Capt. R. H. J. Swan to be temporary Major.

Temp. Capt. (acting Major) R. H. Jones relinquishes his acting rank on reposting.

To be acting Majors: Capt. C. E. H. Milner, R.A.M.C., T.F., whilst in command of a General Hospital; Capt. W. J. Tobin, whilst in command of a Field Ambulance; Temp. Capt. A. E. Seller, whilst in command of troops on a hospital ship.

Temp. Capt. (local Major) R. R. K. Paton relinquishes his local rank on reposting.

Temporary Lieutenants (Canadian Militia), Canadian A.M.C., to be temporary Captains: H. E. Brown, from Lieutenant, R.A.M.C., P. W. Barker, from Captain, R.A.M.C.

Temporary Lieutenants to be temporary Captains: J. Cameron, H. A. G. Hadden, G. W. Spencer, W. A. Cochrane, W. G. Parker, J. H. P. B. Barrett, B. Cox, W. Dickson, P. A. Reckless, G. J. Jones, S. J. C. Fraser, D. Burns, I. Feldman, E. R. Hart, S. A. W. Munro, D. H. Hall, J. J. O'Neill, D. Lees, G. P. White, R. M. Rowe, W. Brownlie, R. Johnson, T. Dowzer, E. J. Clark, W. Paul, W. Speedy, R. A. Warters, A. D. Moffat, J. J. Clarke, R. E. Illingworth, A. D. Hunt, A. W. Mather, A. C. Tait, C. W. C. Robinson, W. M. Buchanan, W. J. Pearson, E. L. Christoffelsz, C. F. Maclachlan, J. G. M. Moloney, A. D. Buchanan, W. D. D. Small, R. M. Hewitt, J. P. Fairley, M. C. Bridgman, A. McNally, A. E. McCulloch, G. J. Hanley, G. H. Kearney, H. C. Fox, E. W. Martin, W. M. Muirhead, J. Bain, R. R. Watts, C. M. G. Elliott, F. W. Craig, J. Oag, A. McL. Pilcher, J. F. St. J. Annesley, A. H. Donaldson, J. McF. Grier, F. R. Marriott, G. W. Huggins, E. C. Sparrow, A. H. Ernst, R. N. Craig, A. H. G. Burton, W. G. Porter, J. A. Macarthur, T. C. Bowie, B. Graves, D. S. Robertson, J. H. C. Fegan, R. Younger, A. J. L. Speechly, A. N. Cox, W. S. T. Connell, H. G. Carlisle, F. C. Stewart.

To be temporary Captains: G. O. Scott, Canadian A.M.C.; W. Hale, Canadian A.M.C.

E. S. Phillips to be temporary Honorary Lieutenant whilst serving with British Red Cross Hospital, Netley.

Temporary Captains relinquishing their commissions:—W. B. Thompson, R. J. H. Cox, C. L. Morgan, F. A. Bainbridge, J. Fettes, O. F. McCarthy, W. Winslow, C. H. Philips, C. P. V. MacCormack, C. W. Roe, R. H. Fothergill, B. M. Collard, R. B. Jackson, T. H. Agnew, J. P. Lavery, H. H. Scott, C. G. R. Pennant (on account of ill-health).

The undermentioned, having resigned their appointments at the Welsh Hospital, Netley, relinquish their commissions: Temp. Hon. Capts. J. S. Rowlands and T. G. Evans, Temp. Hon. Lieuts. W. MacAdam and D. J. Harries.

Lieutenants relinquishing their commissions:—T. M. Body, H. A. R. F. Unwin, D. M. Hanson, H. Farncombe, J. Massey, M. J. Harkin, W. A. L. Marriott, D. A. Thomson, A. Brebner, H. Tonks, G. O. Scott, C. M. Scott, J. Dunbar, S. McComb, C. E. Jones-Phillipson, F. J. C. Blackmore, J. Bryan, O. Le F. Milburn, H. W. P. Parrott, R. A. R. Green, T. Winning, G. F. Palmer, L. W. Oliver, A. L. Singer, I. J. Balkin, E. G. Pringle, W. Stevenson, M. Campbell, R. Montgomery, G. Fitz-Gerald, C. S. Rivington, W. B. Mercer, S. Stockman, F. J. Eager, J. McConnell, W. M. Nairn, H. de L. Crawford, W. W. Jones.

Temporary Lieutenants relinquishing their commissions: J. S. Johnson, T. G. H. Drake, A. H. B. Kirkman, and A. E. Whitmore, and A. S. Paterson (on account of ill-health).

The undermentioned, having resigned their appointments with No. 8 British Red Cross (Baltic and Corn Exchange) Hospital, relinquish their commissions: Temp. Hon. Lieuts. C. E. Drennan and C. E. Sparks.

SPECIAL RESERVE OF OFFICERS.

Capt. H. M. Williams to be Acting Major whilst in command of a Field Ambulance.

Lieutenants to be Captains: T. Blackwood, J. P. Broom, A. C. Brown, J. W. Dalglish, J. F. Duthie, J. Ewing, E. G. S. Hall, R. W. MacDonald, D. B. McIntosh, J. W. Maclean, A. F. McMillan, R. Rodger, J. A. Buchanan, G. Lapage, J. M. H. Campbell, P. D. H. Chapman, E. B. Alabaster, J. B. Steven, K. J. T. Wilson, R. Isbister, T. Gray, M. Dwyer, J. M. Downie, H. S. Moore, R. B. Stewart, R. L. Portway, D. F. Standing, R. J. Staley, W. J. Vance, W. F. T. Haultain, G. J. Key, A. H. Craig, G. Ewen, W. D. Whamond, D. D. Evans, W. H. Dye, G. E. Kidman, F. J. Murphy, A. Fowler, A. G. Stevenson, A. C. MacDonald, O. Johnston, W. C. Borrie, S. J. Henderson, R. B. Hick, W. O. F. Sinclair.

Lieut. (on probation) J. P. Macnamara is confirmed in his rank.

To be Lieutenants: J. H. Thomas, D. J. Thomas, J. Burke, H. D. McIlroy, H. St. H. Vertue, C. J. Penny, S. A. T. Ware, H. J. Blampied, R. R. Traill, L. G. Blackmore, L. S. Gathergood, K. N. G. Bailey, M. C. Joint (from University of London Contingent, O.T.C.), H. Franklin (from Leeds University Contingent, O.T.C.), R. W. Lush, E. R. Longstaff, W. Andrew.

Capt. J. O. Hamilton relinquishes his commission on account of ill-health.

Lieut. (on probation) A. F. Grimbly relinquishes his commission on appointment to Royal Navy.

TERRITORIAL FORCE.

Capt. R. A. Hooper, from 1st Northern General Hospital, to be Captain.

Capt. (temp. Major) R. W. Brimacombe to be Acting Lieutenant-Colonel whilst commanding a Casualty Clearing Station.

Capt. A. G. Whitfield relinquishes his commission on account of ill-health.

Capt. (temp. Lieut.-Col.) H. N. Goode relinquishes his temporary rank on ceasing to command a Field Ambulance.

Lieut. T. L. Ashforth to be Captain.

Capts. (temp. Majors) C. S. Brebner and G. Mackie to be acting Lieutenant-Colonels whilst commanding a Field Ambulance.

Lieut. W. A. Milne to be Captain.

Capt. (temp. Major) J. Grounds relinquishes his temporary rank on alteration in posting.

W. J. Read to be Lieutenant.

HOUSEHOLD CAVALRY.

Surg.-Maj. J. H. Power to be Surgeon Lieutenant-Colonel.

DEATHS IN THE SERVICES.

Surgeon-General Sir Benjamin Franklin, K.C.I.E., honorary physician to the King, suddenly, at his residence, Westhay, East Sheen, on Feb. 17th, aged 73. He entered the Indian Medical Service in 1869, and after serving at Lucknow and Simla, held the position of surgeon to the Earl of Elgin, Viceroy of India (1894-99), subsequently officiating as Inspector-General of Hospitals in Bengal, the North-West Provinces and Oudh, and Punjab. He was British delegate to the International Sanitary Conference at Rome in 1907, and again at Paris in 1911-12. Sir Benjamin Franklin had held the post of Director-General of the Indian Medical Service and that of Sanitary Commissioner with the Government of India. He was a Knight of Grace of the Order of St. John of Jerusalem, and an active member of the Council of the British Red Cross Society. He received the K.C.I.E. in 1903. Although he had been in failing health since September last, he, nevertheless, continued to work as a member of the Red Cross Executive at the headquarters in Pall Mall.

URBAN VITAL STATISTICS.

(Week ended Feb. 17th, 1917.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18,000,000 persons, the annual rate of mortality was equal to 22·5, against rates steadily rising from 16·2 to 21·3 per 1000 in the four preceding weeks. In London, with a population of more than 4,000,000 persons, the death-rate was 23·3, or 1·1 per 1000 higher than that recorded in the previous week; in the remaining towns the rate ranged from 13·5 in Ilford, 14·0 in West Hartlepool, and 15·0 in East Ham, to 33·9 in Warrington, 34·1 in Hastings, and 38·7 in Wigan. The principal epidemic diseases caused 299 deaths, which corresponded to an annual rate of 0·9 per 1000, and included 133 from measles, 52 from diphtheria, 49 from infantile diarrhœa, 37 from whooping-cough, 17 from scarlet fever, and 6 from enteric fever. The deaths from measles, scarlet fever, and whooping-cough were in excess of the average in the three preceding weeks; measles caused a death-rate of 2·2 in Warrington, 2·6 in Ilford, and 6·0 in Wigan. The 806 cases of scarlet fever and the 1436 cases of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were respectively 5 and 9 in excess of the numbers at the end of the previous week. Of the 7483 deaths from all causes in the 96 towns, 270 resulted from violence. The causes of 76 of the total deaths were uncertified, of which 14 were registered in Liverpool, 13 in Birmingham, and 6 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual death rate was equal to 20·1, against 17·7 and 17·9 per 1000 in the two preceding weeks. The 431 deaths in Glasgow corresponded to an annual rate of 20·1, against 23·3 per 1000 in London, and included 12 from whooping-cough, 7 from measles 4 from infantile diarrhœa, 3 from diphtheria, and 1 from scarlet fever. The 136 deaths in Edinburgh were equal to a rate of 21·4 per 1000, and included 8 from whooping-cough, 3 from measles, and 2 from diphtheria.

Irish Towns.—The 208 deaths registered in Dublin were equal to an annual rate of 27·2, or 0·9 per 1000 less than in the previous week, and included 5 from measles, 2 from infantile diarrhœa, and 1 from whooping-cough. In Belfast the death-rate was 29·9 per 1000; the 225 deaths from all causes included 3 from measles, 2 from whooping-cough and 1 from infantile diarrhœa.

Correspondence.

"Audi alteram partem."

OFFICIAL MEDICINE AND THE THRIFTY SPIRIT.

To the Editor of THE LANCET.

SIR,—I see that according to the *Times* the Royal Society of Medicine, a day or so ago, entertained Sir Alfred Keogh to dinner at the Café Royal. As a Fellow of the Society, I may point out that it was not the Society but the Council Club which did this. Let me say at once that I am an ardent admirer of Sir Alfred Keogh and the work he has done for the Army, and the profession would honour itself in honouring him, in any way that might be thought fit, when the war is over.

I fail, however, to see how the Council Club of this Society can justify a dinner of such a kind at the Café Royal in present circumstances. Surely, Sir, at a time when we are threatened with a shortage of the very necessities of life, and at a time when the Food Controller has placed us on our honour not to overstep our food allowance, these gentlemen might find something better to do than to feast at the Café Royal. It is a curious fact that even among some of the leaders of the medical profession, intelligent men who might be expected to set an example, there appears to be a very faint conception of the fact that we are engaged in a struggle for our very existence. The Council of the Royal Society of Medicine, however, is not perturbed, the Council Club holds its dinner, and a number of the sections continue to hold their meetings, at which papers are read and specimens are shown which, in many instances, cannot be regarded as having any bearing upon the treatment of the sick and wounded of our armies; and so furthering the progress of the war. Considerable sums of money are spent also in issuing the Transactions of the Society containing these papers, most of which are never read.

As a further example of waste by members of the medical profession, I may instance the issue, recently, of the List of Fellows and Members of the Royal College of Physicians of London, forwarded, I believe, to every Fellow. This book of some 400 pages is made up mainly of a list of names and addresses, information all contained in the Medical Directory. I imagine the majority of the Fellows consign it to the waste-paper basket at once. How the authorities of the College can countenance such an expenditure in paper and printing at the present time I cannot imagine.

I am, Sir, yours faithfully,

A FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND OF THE ROYAL SOCIETY OF MEDICINE.

Feb. 20th, 1917.

SPIROCHÆTAL JAUNDICE.

To the Editor of THE LANCET.

SIR,—It is satisfactory to learn from Dr. Frederick Taylor's letter in your issue of Feb. 10th that the Royal College of Physicians' Committee on the Nomenclature of Diseases is prepared to discard the name Weil's disease for the form of infective jaundice which is caused by infection with a specific spirochæte. Dr. Taylor prefers the more cumbrous name of spirochætosis-icterohæmorrhagica to spirochætal jaundice because jaundice may occur in other spirochætal diseases, such as syphilis and relapsing fever; but the same argument may be used against the longer names, as hæmorrhages are certainly as common as jaundice in syphilis and are not very rare in relapsing fever. On the other hand, jaundice is the most characteristic symptom of this spirochætal infection, but it is very rare in syphilis, and was not present in a single one of the six cases of relapsing fever I saw in Salonika. As the names syphilis and relapsing fever are so well established, I do not think there can be much fear that the name spirochætal jaundice would lead to confusion with the jaundice due to these diseases.

Lastly, the inappropriate terms English disease for rickets and German measles for rubella hardly encourage further attempts in this direction, especially as it is impossible, as Dr. Taylor points out, to distinguish between the claims

of France and Japan in deciding between "S. gallica" and "S. japonica." I am inclined to think, therefore, that no more accurate or convenient name than spirochætal jaundice is likely to be found.—I am, Sir, yours faithfully,

Netley, Feb. 11th, 1917. ARTHUR F. HURST.

THE DATE OF WEANING.

To the Editor of THE LANCET.

SIR,—The Health Society of the Borough of St. Marylebone, of which the medical officer of health is chairman, has recently circulated a copy of certain recommendations which it has addressed to its borough council with the suggestion that a similar appeal may be sent to other borough councils "to strengthen the position." The committee's appeal is concerned primarily with the effects produced by the present costliness of cow's milk, and contains the following words:—

> The medical officers of the infant consultations in St. Marylebone report that the work is falling short of success because their advice as to feeding cannot be carried out owing to the high price of milk. In many cases the baby, when it is weaned, whether early or at 9 months, goes short of milk and in consequence loses weight or at best puts on 1 or 2 oz. a week—where a healthy baby makes an average of 6. Often the mother does not feel justified in weaning at the proper time, as she sees no prospect of being able to afford the quart of milk a day (*3s. 6d.* a week) which the baby should have. So she continues to nurse the baby long beyond nine months to the detriment of her own health and that of the baby. ..... Unless steps can be taken to enable the mothers to obtain milk at a lower price, the infant mortality rate is likely to be higher next year.

It is impossible not to be in sympathy with the spirit of this appeal, nor to regret the very real hardship which the high price of cow's milk entails to many poor families and weakly infants. But the particular form of these recommendations scarcely commands the same assent. In the first place, it is by no means clear whether the rates of gain in weight quoted are intended to apply to the early months of the first year or to those after the ninth month, and in either case for how long they should be maintained. At the rate of 6 oz. a week a child would gain 19½ lb. in a year. This is certainly above the average for the first year of life, and would be grossly pathological for the second. For the latter period 2 oz. a week (6½ lb. a year) is much nearer the normal. The medical officers, moreover, employ a common contradiction in terms when they urge that a child should be "weaned" at the age of 9 months, and in the same sentence declare that a quart of milk must still be included in the daily diet. The word "wean" should imply that the child can do without milk, not that a transference from one kind of milk to another takes place. Either 9 months is too early an age at which to recommend weaning in this sense; or, if it is the "proper" time, the child does not need a quart of cow's milk daily. Both statements cannot be scientifically correct.

I would respectfully submit that this needs wider recognition. It is not, Sir, merely an etymological quibble, but a point which very vitally concerns infants, and particularly those of the class of woman attending schools for mothers and similar institutions. The practice of continuing to nurse a child beyond the age of 9 months is extremely common. But in view of the stern moral denunciation which its mention frequently receives from the medical and nursing professions, women are most reluctant to admit that after this age their children still obtain breast-milk. As the result of a large number of inquiries and observations in cases where a longer period of nursing is customary, I have been quite unable to ascertain that a healthy woman suffers thereby any decline in strength. Evidence of any actual harm to the child from continuing to take the breast is equally difficult to obtain, so long as allowance is made for the very frequent mistakes in choosing food to supplement the milk about this age. From a biological point of view, this is so exactly what might have been expected that it seems desirable to take exception to the statement of the medical officers quoted above. For if it means anything at all, it means there is something in breast milk which after nine months of lactation is inherently harmful to the child, and that the act of suckling is at the same time necessarily detrimental to the woman. It is, I believe, extremely important to qualify any such assertion by explaining that it only applies to special cases where the mother is not healthy or the child is delicate. For such cases it would be a most excellent achievement to obtain special facilities for a supply of clean milk at cheap rates.

In support of its views the committee states that it has forwarded to the borough council a list of a "few cases which have been very carefully investigated and which are typical of a very large number of those attending schools for mothers." Most medical officers of such schools could, unhappily, do the same. But there would be no difficulty in collecting from another borough of London, no more favourably situated than St. Marylebone, a large body of evidence to demonstrate the point I am at pains to emphasise—namely, that many children of the poor classes are able to maintain a perfectly satisfactory rate of gain in weight after 9 months of age, and are yet practically independent of cow's milk as food, except in so far as it is used as a convenience in cooking. Indeed, were the price of cow's milk to be lowered to a point at which it was possible for these recommendations to come into force, and were every child to start consuming a quart daily after the age of 9 months, one is tempted to wonder whether a serious rise in the death-rate would not follow automatically; the very point this Health Society is anxious to prevent. Where, also, are the cows coming from to supply such a colossal demand? I am, Sir, yours faithfully,

Gray's Inn, W.C., Feb. 21st, 1917. HAROLD WALLER.

SURGEON-PROBATIONERS.

To the Editor of THE LANCET.

SIR,—Surgeon-General Rolleston, R.N., in his remarks on the medical personnel of the Royal Navy (THE LANCET, Feb. 17th, p. 255) states that surgeon-probationers, R.N.V.R., were appointed after mobilisation. Reference to a Navy List of July, 1915, shows that the first appointment to a commission as above was made on April 22nd, 1914, and that seven appointments were made before mobilisation. I think it is due to the Director-General of the Navy that this fact should be known, as it shows that the arrangements for the utilisation of the services of medical students were thought out in peace-time.

I am, Sir, yours faithfully,

P. CALDWELL SMITH,

London, Feb. 17th, 1917. Lieutenant-Colonel, R.A.M.C., T.

THE PLACE OF SANATORIUM TREATMENT IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—In the leading article on Tuberculosis and the War in your issue of to-day's date, you give prominence to Dr. D. Dunbar's statement as to the relative ineffectiveness of sanatorium treatment at Aysgarth, and go on to suggest that, as far as the chronic consumptive is concerned, residence in a sanatorium is not necessarily even the best form of treatment. It would be highly unfortunate if these observations should unwittingly foster the idea that sanatorium treatment has been a failure.

In the first place, such figures as Dr. Dunbar's are quite meaningless in the absence of various data—e.g., methods of selection, milieu, duration of treatment, &c., while, even if they were quite beyond criticism, it would be extremely unfair to saddle the sanatorium with blame which could more justly be imputed to after-conditions. Without any desire to exaggerate the rôle of the sanatorium or to belittle that of the dispensaries, I should like to lay emphasis on the fact that for *all* forms of phthisis the one is quite as essential as the other. It is probably true that, as modern research suggests, many latent-active cases would get well of themselves without either sanatorium or dispensary treatment (particularly the so-called abortive cases described by Bard); but it is equally true that for all cases existing on lower planes of resistance than these sanatorium treatment for at least one period, if not for several distinct periods, is absolutely essential. Moreover, in laying emphasis on the prohibitive cost of housing, even for a time, the chronic consumptive, one is apt to ignore the direct return to the State in the form of increased working capacity over astonishingly long periods, to say nothing of educative value, opportunities for administering tuberculin under observation, &c. It is not suggested by Dr. Dunbar that dispensary methods would have increased his percentage of permanent cures; and there are few public authorities would have the courage to pursue the reactionary course

of excluding chronic cases from sanatorium treatment even if the 5 per cent. for whom (according to Dr. Dunbar) a cure could be predicted would be found prepared to acquiesce in their exclusion. Finally, where there is a proper organisation of sanatorium, dispensary, and hospital treatment, together with an efficient system of examination and diagnosis (as, for instance, in Birmingham, where the tuberculosis scheme is probably a model), it will be found that the after-history records of chronic consumptives treated in sanatoria are infinitely better than those quoted by Dr. Dunbar.

If one might suggest any alterations in the present system the existing control by Insurance Committees should be abolished in favour of organisation by health departments, and the inefficient and often entirely mythical system of domiciliary treatment should be swept away; in place of the latter the dispensary system should be amplified by the appointment of a visiting staff, and institutions should be multiplied which would be available for the proper diagnosis of undetermined cases. To contemplate running tuberculosis schemes mainly on a dispensary system is, in a sense, to put the cart before the horse, if not actually to decapitate that useful animal.

I am, Sir, yours faithfully,

EDWARD G. GLOVER, M.D. Glasg.,

Medical Superintendent, Salterley Grange Sanatorium, Feb. 17th, 1917. Cheltenham.

PNEUMATIC TOURNIQUETS.

To the Editor of THE LANCET.

SIR,—The recent letters on this subject would suggest that pneumatic tourniquets are something new, whereas they have been used extensively for several years. In THE LANCET of Jan. 25th, 1913, I illustrated a pneumatic tourniquet which I had used for several months and therein described its uses, its advantages, and some practical points which I had learnt in employing it. I have seen no reason to have it altered from the original model, and the makers, Messrs. Montague, 69, New Bond-street, tell me they have sold a large number, and receive frequently inquiries about them.

I am, Sir, yours faithfully,

R. H. JOCELYN SWAN, M.S. Lond., F.R.C.S. Eng.,

Major, R.A.M.C.; Senior Surgeon, Royal Herbert Hospital, Wimpole-street, W., Feb. 17th, 1917. Woolwich, &c.

THE DRESSING OF BURNS WITH PARAFFIN WAX.

To the Editor of THE LANCET.

SIR,—In an annotation under the above heading in your issue of Feb. 17th the use of Dr. Barthe de Sandfort's "ambrine" is mentioned as being applied for use in the Navy by the instructions of Sir Arthur May.

It is stated that: "As, however, the preparation is a secret one controlled by a company in Paris, the treatment is not as readily accessible as some of our correspondents desire."

"Ambrine" is composed of specially prepared paraffin wax with 5 per cent. of oleum succini, and will now be readily obtainable, the representation for Great Britain, &c., being in the hands of—Yours faithfully,

THE ANGLO-FRENCH DRUG CO., LTD.

Gamage Buildings, Holborn, London, E.C., Feb. 17th, 1917.

DONATIONS AND BEQUESTS.—By will the late Mr. Edward Hinkley, of Southport, bequeathed £1000 each to the Southport and Birkdale District Nursing Society, the Leicester Infirmary, Southport Infirmary, £500 each to the Southport Children's Sanatorium, Leicester Institute for the Blind, Leicester Institute for the Deaf and Dumb, Southport Institute for the Deaf and Dumb, and the Homœopathic Dispensary, Southport.—The late Mr. J. Holmes, of Bradford, left £500 to the Bradford Royal Infirmary and the residue of his estate to the Bradford Eye and Ear Hospital and the Bradford Children's Hospital.—By the will of the late Mr. Alfred Ewin, of Southend, the testator has bequeathed £1000 each to the City of London Hospital, Victoria Park, and the Queen Alexandra Hospital, Hackney-road; £600 to the Southend Victoria Hospital and Nursing Home for a "Ewin" bed, and £300 for a children's cot to be called after him, and £200 to the Adelaide Dispensary, Bethnal Green.

Medical News.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

FINAL EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Part I. only.—Daniel Gingell Cossham.

DIPLOMA IN PUBLIC HEALTH.

Pass.—James Francis Blackett.
Part II., completing examination.—John Maurice Harper.
Part I. only.—Isaac Bernard Barclay.

HEALTH INSURANCE FINANCE IN LONDON.—A deputation from the London Insurance Committee was recently received by Sir Edwin Cornwall, M.P., chairman of the National Health Insurance Joint Committee, which laid before him the financial position of National Insurance in London in plain terms. The carrying out of the work of the London Insurance Committee upon the allowance made by the Treasury was stated to be impossible, the deficit was fixed at £20,000, and the probability of a levy having to be made upon the insured population of the County of London, if no further support from the Government should be forthcoming, was spoken of. Sir Edward Smith, the spokesman of the deputation, added that public men were not prepared to give up their time to the administration of National Insurance unless the money necessary for their purpose was forthcoming, and that those associated with him would prefer to resign their positions rather than continue attempting the work assigned to them upon an insufficient income. Sir Edwin Cornwall accorded a sympathetic reply and spoke of the request made, as being reasonable.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—The annual meeting of the Guild was held on Feb. 16th at 11, Chandos-street, W., when Lady Tweedy presided and read the report of Council for the preceding year. The report of the Father Christmas branch was read by Miss Gladys Edwards, honorary treasurer. The sub-reports of the Case Committee and the Clothes Committee were read by the respective chairmen, Mrs. Liveing and Mrs. Furnival. In the unavoidable absence of the honorary treasurer, Mrs. Scharlieb, Lady Fripp submitted the financial statement. Dowager Lady Broadbent's resignation of the presidency of the Guild was accepted, and the nomination of Lady Bradford as President was confirmed. The need of new secretaries was emphasised by Lady Tweedy's statement that the Guild received applications for help from such widely scattered districts as the Shetland Isles, Wales, and Cornwall. She was glad to say that with the increase of applicants pleading for help the charity was also increasingly supported, and in two cases the Guild was benefited by gifts from the trustees of funds left for charitable purposes. This marks the beginning of an important source of help.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on Feb. 15th, with Sir Francis H. Champneys in the chair.—Further correspondence was considered with reference to a candidate for examination who was stated by the approved midwife in whose house she was residing to have taken a variety of drugs and stimulants during the week preceding an examination, and in particular during the morning of the first day of the examination. The Board directed that the statement of the candidate be referred for comment to the approved midwife in whose house the taking of drugs and stimulants is alleged to have occurred.—Further correspondence was considered with reference to a candidate for examination who had tendered a certificate of birth which had been falsified. The Board decided that the candidate having now furnished the Board with an explanation of the circumstances attending the falsification of her birth certificate, and having tendered a fresh and unaltered birth certificate, be admitted to examination.—A letter was considered from the Acting Registrar of the General Medical Council conveying the request of the President that the Board would forward to the local supervising authorities (*a*) a copy of a circular letter addressed by the Council to all the registered medical practitioners in England and Wales, calling their attention to the provisions of the Midwives Act, 1902, which prohibit any women not being certified under the Act from attending women in childbirth habitually and for gain otherwise than under the direction of a qualified medical practitioner; (*b*) a copy of a warning notice issued by the Council, pointing out that any registered medical practitioner proved to have been guilty of "covering" an uncertified woman will be liable to have his name erased from the Medical Register. The secretary reported that the Local Government Board have expressed a desire to forward from their office the circular letter and the warning notice to the various local supervising authorities, and that the General Medical Council have

agreed to this being done. It was decided that the Central Midwives Board has no objection to the Local Government Board distributing the circular letter and warning notice of the General Medical Council as suggested by the Local Government Board.—A letter was considered reporting the conviction of an uncertified woman for a breach of Section 1 (2) of the Midwives Act, 1902, and requesting the Board to consider the conduct and action in connexion with this case of a medical practitioner. The Board resolved that the papers in the case be forwarded to the General Medical Council with a request that they will take such action in the matter as may seem fit to them, and that if so desired the Board will undertake to appear as prosecutors in the case.—A letter was also considered reporting the prosecution of an uncertified woman for a breach of Section 1 (2) of the Midwives Act, 1902, and of a registered medical practitioner for aiding and abetting her, and requesting the Board to consider his conduct and action in connexion with the case.

CENTENARIAN.—Mrs. Mary Ann Brooks celebrated the 101st anniversary of her birthday at King's Lynn on Feb. 19th.

THE annual meeting of the Mental After-Care Association will be held at the house of Sir Robert Armstrong-Jones, 9, Bramham-gardens, South Kensington, London, S.W., the Lord Mayor of London presiding. The meeting is open to all interested.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Criminal Law Amendment Bill.

THE Criminal Law Amendment Bill, which has been introduced in the House of Commons by the Home Secretary "to make further provision with respect to the punishment of sexual offences and the prevention of indecent advertisements and matters connected therewith," has been printed. It was read a second time on Monday, Feb. 19th. The Bill, which is an important one, makes it an offence to communicate knowingly venereal disease, extends the Indecent Advertisements Act with a view to suppress the advertisement of the "quack" treatment of venereal diseases, and imposes increased penalties for the offences of soliciting and the maintenance of houses of ill-fame.

Clause 1 deals with the punishment of acts of indecency with girls under 16. It runs:—

(1) Any male person of the age of 16 years or over who commits an act of indecency with a girl under the age of 16 years shall be liable on conviction on indictment to imprisonment with or without hard labour for a term not exceeding two years, or on summary conviction to imprisonment with or without hard labour for a term not exceeding six months; and it shall be no defence to a charge under this section to prove that the girl consented to the act of indecency.

(2) No prosecution shall be commenced for an offence under this section more than six months after the commission of the offence.

(3) If upon the trial of any indictment for rape or for an indecent assault, or for an offence under sections 4 or 5 of the Criminal Law Amendment Act, 1885 (in this Act referred to as the principal Act), or under the Punishment of Incest Act, 1908, the jury are not satisfied that the defendant is guilty of the offence charged but are satisfied that he is guilty of an offence under this section, they may acquit the defendant of the offence charged and find him guilty of an offence under this section. In every such case the defendant shall be liable to be punished as if he had been convicted upon an indictment for the offence of which he is so found guilty.

Communication of Venereal Disease.

Clause 2 imposes a penalty on a person suffering from venereal disease who has sexual intercourse with another person. Its terms are:—

(1) A person who is suffering from venereal disease in a communicable form shall not have sexual intercourse with any other person or solicit or invite any other person to have such sexual intercourse.

(2) If any person acts in contravention of this section, that person shall be liable on conviction on indictment to imprisonment with or without hard labour for a term not exceeding two years, or on summary conviction to imprisonment with or without hard labour for a term not exceeding six months. Provided that a person shall not be convicted under this section if that person proves that he or she had reasonable grounds to believe that he or she was free from venereal disease at the time the alleged offence was committed.

(3) Where any person is convicted of any of the offences mentioned in the Schedule to this Act [these are offences against this measure and certain specified offences against the person] the court may, if they think fit, for the purpose of ascertaining whether that person is suffering from venereal disease in a communicable form order that person to submit to such medical examination and tests as may be requisite for that purpose. If the person is a female, the examination and tests shall be conducted, if she so desires, by a female doctor.

(4) Where a person has within three months before the commission of any alleged offence under this section received a written notice, either on an examination ordered under this section or while under compulsory detention in any prison or other institution, from a duly qualified medical practitioner that he or she is suffering from venereal disease in a communicable form that person shall be deemed to have been so suffering at the time when the alleged offence was committed, unless the contrary is proved.

(5) An offence under this section shall be deemed to be an offence to which Section 29 of the Larceny Act, 1916 (which relates to the demanding of money, &c., with menaces), applies.

(6) In this section the expression "venereal disease" means syphilis, gonorrhœa, or soft chancre, or any disease of the genito-urinary organs which may reasonably be suspected to be venereal disease.

Clause 3 lays down that cause to believe that a girl was of or above the age of 16 shall not be a defence to a charge under Sections 5 or 6 of the Criminal Law Amendment Act. Clauses 4 and 5 relate to proposals to increase penalties for keeping brothels, and Clause 6 amends the penalty for soliciting or loitering for the purposes of prostitution.

Indecent Advertisements.

Clause 7 extends the Indecent Advertisements Act and is in the following terms:—

(1) The Indecent Advertisements Act, 1889, shall be extended as follows: (*a*) A person who publishes by way of advertisement, or causes to be published, any picture or printed or written matter which is of an indecent or obscene nature, shall be guilty of an offence under Section 3 of that Act and punishable accordingly; (*b*) a person who gives or delivers to any other person any such picture or printed matter or written matter with intent that the same should be published by way of advertisement, shall be guilty of an offence under Section 4 of that Act and punishable accordingly; (*c*) the maximum penalties under Sections 3 and 4 of that Act shall be £100, and six months' imprisonment instead of 40s. and one month's imprisonment and £5 and three months' imprisonment respectively, and those sections shall have effect accordingly; (*d*) The following section shall be substituted for Section 5:—"Any advertisement relating to syphilis, gonorrhœa, nervous debility, or other complaint or infirmity arising from or relating to sexual intercourse, and any advertisement which suggests directly or indirectly, the use or taking of any appliance, drug, substance, or thing, for the purpose of procuring miscarriage or abortion, or which suggests, directly or indirectly, that any premises are or can be used for immoral purposes, shall be deemed to be printed or written matter of an indecent nature within the meaning of Section 3 of this Act."

(2) Nothing in the Indecent Advertisements Act, 1889, as amended by this Act shall apply to any advertisement by any local or public authority, or to any advertisement published in any *bonâ-fide* medical or pharmaceutical publication or pharmaceutical trade list; and a person charged under that Act as so amended with publishing an advertisement, if he is not himself the advertiser, shall not be convicted if he proves that he did not know, and had no reasonable ground for suspecting, that the advertisement was of such a character as to make the publication thereof an offence.

The remaining clauses deal with procedure and with the application of the measure to Scotland and Ireland.

The Second Reading.

The HOME SECRETARY, in moving the second reading of the Bill, said that a strong case existed for such a measure. The evils which were aimed at were patent to all, and the need for a remedy was urgent. He was quite ready to think that this country was no worse than, and, indeed, it might be better than, many other countries. He had aimed at confining the measure to proposals which would receive general assent and would, he hoped, be quickly passed into law. The right honourable gentleman proceeded to explain the terms of the Bill. With reference to Clause 2, which dealt with the subject of venereal diseases, he believed that matter was of real importance to the future of the race, and by the admirable report of the Royal Commission on Venereal Disease it had been brought into the region where action might be taken. Of the many recommendations of that Commission perhaps the most important dealt with questions of diagnosis and of treatment, and with the provision of institutions assisted by the local authorities. These matters were in the province of the Local Government Board, which had taken vigorous action in that direction. The suggestion that unqualified practice should be restricted was closely allied with the question of treatment. That subject was not a matter for the Home Office, but it was being considered by the President of the Local Government Board with a view to legislation along that line. There remained matters which must be dealt with, if at all, by amendments of the criminal law, and after consultation with the President of the Local Government Board and his advisers he had included in the Bill two provisions relating to venereal disease. One of these provided that "a person who is suffering from venereal disease in a communicable form shall not have sexual intercourse with any other person or invite any other person to have such sexual intercourse." He thought that a person of either sex who had the misfortune to suffer from one of these terribly contagious complaints ought not to be allowed to act so that the disease was likely to be communicated to others and perhaps passed on to future generations. Therefore he proposed to make that in itself an offence. When this disease was so terribly contagious its communication ought to be prevented. He was conscious that there might be difficulties in bringing the offence home to those who were guilty of it. Special provisions had been inserted which would operate in certain cases. It was provided that a person convicted of certain offences which were of a sexual character might be examined by a medical man in order to ascertain whether he

or she was suffering from one of these diseases. The doctor in the case of a female prisoner would, if desired, be a female doctor. Then the doctor who made the examination might, if the person was suffering from venereal disease, give a written notice to that effect, so that the person could not afterwards say that he or she had had no notice of the disease. He did not think that anyone could complain of an arrangement of that kind. The other matter relating to venereal disease was contained in Clause 7, which dealt with the Indecent Advertisements Act, 1889. That Act provided that advertisements for the cure of venereal diseases should be deemed indecent, but it omitted to deal with advertisements in newspapers. It was proposed to extend the Act to advertisements in newspapers. It was also desired to extend it to advertisements of means for procuring abortion, or suggesting that premises could be used for immoral purposes.

Mr. HERBERT SAMUEL (the late Home Secretary) said that he was convinced that the Bill would do much to mitigate the havoc which was wrought by venereal diseases and the scandals of child prostitution. He observed that he was not in favour of the compulsory notification of venereal disease. It was strange that the law had not hitherto made it an offence for a person with full knowledge of his condition to infect another person with venereal disease.

In the course of the subsequent debate Sir HENRY CRAIK insisted on the urgency of the measure. Several Members criticised some of the provisions in the Bill, which was read a second time. It will be considered in Committee of the whole House.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 14TH.

Operations on Soldiers.

Mr. KING asked the Under Secretary for War whether orders had been given to surgeons of London hospitals not to undertake any operations on soldiers under their charge for diseases originating before they were wounded if the treatment of such cases would delay them from rejoining any longer than would be necessary for recovery from their wounds.—Mr. MACPHERSON answered: The criterion in this matter is fitness for military service, and no instructions have been issued to prevent surgeons performing operations which are necessary for the cure of any disability which unfits a man for military service.

Medical Men's Cars and the Speed Limit.

Mr. CHANCELLOR asked the Home Secretary whether, in view of the shortage of doctors which now necessitated their journeying considerable distances to visit patients, he would consider the advisability of the speed limits for motor-cars being waived so as to reduce the time spent en route; and whether, in view of the restricted lighting and the difficulties of transit at night, in order to facilitate doctors when visiting urgent cases, they might be permitted to use unobscured headlights on their motor-cars.—Sir G. CAVE wrote in reply: I have no authority to waive the speed limit for motor-cars. In framing the orders as to lights on vehicles, special regard has been paid to the requirements of doctors and others who have occasion to travel by road at night. The orders now in force allow the use of sufficient light for safe driving at ordinary speed, and I do not see my way to authorise the use of unrestricted headlights as the honourable Member suggests.

THURSDAY, FEB. 15TH.

Hospital Accommodation in Mesopotamia.

Answering Sir J. JARDINE, Mr. MACPHERSON said that the situation as to supplies and transport in Mesopotamia was now satisfactory. Hospital accommodation was being provided at Nasiriyah, and as soon as it was ready nurses would no doubt be sent there.

MONDAY, FEB. 19TH.

Medical Treatment of Soldiers' Widows.

In answer to Mr. MURRAY MACDONALD, Mr. BARNES (Minister of Pensions) wrote: Resolutions have been received from several Insurance Committees suggesting that public provision should be made for the medical treatment of widows and orphans of sailors and soldiers through the medium of the committees. The matter is receiving very careful consideration.

Discharged Soldiers and Tuberculosis Treatment.

Sir E. CORNWALL (representing the Insurance Commission), in reply to Mr. HOGGE, said: Under special arrangements made by the various Insurance Commissioners with the Admiralty and the War Office beds have been provided for nearly 5000 discharged soldiers and sailors suffering from tuberculosis. Insurance Committees have, in addition, provided beds in the ordinary arrangement for a considerable number of discharged men, but I have no information as to the exact number.

Derbyshire Insurance Committee.

Mr. THOMAS RICHARDSON asked the Representative of the National Insurance Commissioners whether his attention had been called to the fact that the Derbyshire Insurance Committee proposed to charge the practitioners concerned with the estimated cost of medical service subcommittee inquiries; and whether he would take the necessary steps to prevent the Derbyshire or any other Insurance Committee from taking such action, which was giving rise in the medical profession to dissatisfaction with the administration of medical benefit.—Sir E. CORNWALL replied: My attention has not been drawn to the matter to which my honourable friend refers, but in the event of any dispute arising between Insurance Committees and the practitioners the latter have the right of appeal to the Commissioners, who would thereupon deal with the question.

TUESDAY, FEB. 20TH.

"Manipulative" Surgery.

Mr. MACVEAGH asked the Under Secretary for War whether the War Office was willing to appoint immediately a committee composed of men of high attainments but not connected with the medical profession, in order to inquire into the question of utilising for the alleviation of the sufferings of wounded soldiers the services of experts in manipulative surgery who did not hold medical degrees.—Mr. MACPHERSON replied: No, sir.

Mr. MACVEAGH: Why do the War Office object to the appointment of an independent committee?—Mr. MACPHERSON: It is a very doubtful proposition to suggest that non-technical men should be put to deal with a technical subject.

Mr. SWIFT MACNEILL: Are the Government prepared to allow men to suffer in the interest of professional trades unionism?—Mr. MACPHERSON: I must protest against that. Nothing can be more admirable during the whole course of the war than the skill, judgment, and effectiveness displayed by the medical profession.

Sir WILLIAM COLLINS: Whilst not excluding the investigation of any line of treatment from whatever source it may be suggested, will the honourable gentleman have regard to the risks as well as the advantages of uncertified practitioners?—Mr. MACPHERSON: Certainly.

In reply to two questions as to treatment in two instances, Mr. MACPHERSON said that he had no information on them.

Mr. MACVEAGH asked whether the honourable gentleman was aware that the medical profession in France was availing itself of the services of experts in manipulative surgery for the treatment of wounded soldiers; and whether he could state on what grounds the War Office in this country refused to allow a similar dilution of labour.—Mr. MACPHERSON answered: I have no information on the first part of the question. In regard to the second part of the question, apart from other objections, it is the case that under the terms of the Medical Act, 1858, it is not possible to employ as surgeons in the military service any person not registered under that Act.

Mr. MACVEAGH asked whether the honourable gentleman was aware of the statement that manipulative surgery was being used in France.—Mr. MACPHERSON: It would be much better that these things should be discussed in debate rather than by question and answer. I can tell the honourable Member that not only have we the finest doctors and surgeons, but we have also the finest hospitals where the men are treated.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, London.

Your Part in Poverty. By George Lansbury. 1s. net.

CLARIDGE AND CO., G., Bombay.

Indian Manual of First Aid. By Colonel R. J. Blackham, C.I.E., A.M.S. Sixteenth edition. Rs.1-4.

DENNY, A. AND F., 147, Strand, London.

Dreams: What They Are and What They Mean, including a Section on Psycho-Analysis or the New Meaning of Dreams. By J. W. Wickwar. 1s. net.

KING, P. S., AND SON, London.

Prostitution—Moral Bearings of the Problem. By M. F. With a Chapter on Venereal Disease by J. F. (formerly Resident Medical Officer, London Lock Hospital). 1s. net.

MASSON ET CIE, Paris.

Les Blessures des Vaisseaux. Par L. Sencert, Professor agrégé à la Faculté de Médecine de Nancy. 4 fr.

Le Traitement des Plaies Infectées. Par A. Carrel et G. Dehelly. 4 fr.

Dysenteries: Choléra Asiatique et Typhus Exanthématique. Par H. Vincent, Médecin Inspecteur de l'Armée, Membre de l'Académie de Médecine; et L. Muratet, Chef des Travaux à la Faculté de Médecine de Bordeaux. 4 fr.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

HUTTON, A., M.B., Ch.B. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Wartle District of the County of Aberdeen.

LEITCH, A., M.D. R.U.I., Medical Officer and Medical Officer of Health to the Castlederg Dispensary District, County Tyrone, pro tem.

STYAN, T. G., M.D. Cantab., Temporary Medical Officer of Health for Ramsgate.

TOBIN, R. F., F.R.C.S. Irel., Inspector for Ireland under the Vivisection Act.

ST. THOMAS'S HOSPITAL.—Casualty Officers and Resident Anæsthetists: BLAMPIED, H. J., M.R.C.S., L.R.C.P., CHURCHER, D. G., M.R.C.S., L.R.C.P., ORME, F. S., B.A., M.R.C.S., L.R.C.P., and WARE, S. A. T., M.R.C.S., L.R.C.P. Resident House Physicians: BESWICK, W. T., B.A. Cantab., MAVROGORDATO, A., M.A. Oxon., M.R.C.S., L.R.C.P., MILES, M. W. H., M.R.C.S., L.R.C.P., and WOOLRICH, W. G., B.A. Cantab. Resident House Surgeons: MOORE, L. C., JENNINGS, H. C., M.R.C.S., L.R.C.P., BOUSFIELD, G. W. J., and SAI, P., M.R.C.S., L.R.C.P. House Surgeon to Block 8: BLUETT, D. C., M.R.C.S., L.R.C.P. Obstetric House Physician: HARRIS, J. R., M.R.C.S., L.R.C.P. Ophthalmic House Surgeon: MARRIOTT, W. Clinical Assistants: DAVIS, P. G. S., and CHEH, Y. J., M.R.C.S., L.R.C.P.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

APPLECROSS, PARISH OF, ROSS-SHIRE.—Medical Officer, &c., for Torridon District. Estimated emoluments £350 per annum.

ASHTON-UNDER-LYNE, LANCS, DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Assistant House Surgeon. Salary £160 per annum, with usual emoluments.

BATH, EASTERN DISPENSARY.—Resident Medical Officer. Salary £140 per annum, with furnished rooms, &c.

BIRKENHEAD UNION INFIRMARY.—Junior Female Resident Assistant Medical Officer. Salary at rate of £300 per annum, with board, &c.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with furnished rooms, &c.

BIRMINGHAM AND MIDLAND HOSPITAL.—Female House Surgeon. Salary £200 per annum.

BRISTOL ROYAL INFIRMARY.—House Physician and House Surgeon. Salary at rate of £120 per annum, with board, &c.

BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, &c.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—Two House Surgeons for six months. Salary at rate of £175 per annum, with board, &c.

DERBYSHIRE, DEVONSHIRE HOSPITAL, Buxton.—Assistant House Physician. Salary £100 per annum, with board, &c.

DUNDEE DISTRICT ASYLUM.—Assistant Resident Medical Officer. Salary £300 per annum, with board, &c.

DUNDEE MATERNITY AND CHILD WELFARE SCHEME.—Medical Practitioner (Female). Salary £350 per annum.

EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—House Physician. Salary at rate of £160 per annum, with board, &c.

FAREHAM, HANTS COUNTY ASYLUM.—Temporary Assistant Medical Officer. Salary 6 guineas a week, with board, &c.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £200 per annum, with board, &c.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £200 per annum, with board, &c.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—House Surgeon and Assistant Casualty Medical Officer. Salary at rate of £60 per annum, with board, &c.

LONDON COUNTY COUNCIL.—Two Female Medical Inspectors (unmarried or widows) in the Public Health Department. Salary £300 a year.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Senior House Surgeon. Salary £250 to £300 per annum.

MANCHESTER, ABERGELE SANATORIUM.—Temporary Medical Superintendent. Salary £300 per annum, &c.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Female House Surgeon. Salary £120 per annum, with board, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Junior House Physician. Salary £150 per annum, with board, &c.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £250 per annum, with board, &c.

PRIVATE FIRST LINE MILITARY HOSPITAL, near London.—Senior Lady House Surgeon. Salary £300 per annum, with board, &c.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford.—House Surgeon.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board, &c.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician and Junior House Surgeon. Salaries £150 and £120 per annum respectively, with board, &c.

SUNDERLAND ROYAL INFIRMARY.—Female House Surgeons. Salaries—Senior, £250; Junior, £200 per annum, with board, &c.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Senior Resident Medical Officer. Salary £250 per annum, with board, &c.

WEST-END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck street, W.—House Physician. Salary £250 per annum, with board, &c.

WEST HAM UNION SICK HOME, 95, Forest-lane, Forest Gate, E.—Resident Assistant Medical Officer. Salary £300 per annum, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Morriston, Woodstock, Wansford, Helston, and Clonakilty.

Births, Marriages, and Deaths.

BIRTHS.

BUNBURY.—On Feb. 14th, at "Moorlands," Mullion, the wife of E. G. Bunbury, M.R.C.S., L.R.C.P., of a daughter.

HEWITT.—On Feb. 11th, at Nottingham-place, W., the wife of Lieutenant R. C. Hewitt, R.A.M.C., of a daughter.

HUGHES.—On Feb. 13th, at Barnaley Hall, Bromsgrove, Worcestershire, to Dr. and Mrs. Percy T. Hughes—a son.

KIRKNESS.—On Feb. 10th, at The King's Service Home, Southsea, the wife of W. R. Kirkness, M.R.C.S., L.R.C.P., "Montrose," Portsmouth, of a daughter.

MCMULLEN.—On Feb. 13th, at Templ-r's-avenue, Golder's-green, the wife of W. Halliburton McMullen, F.R.C.S., of a son.

WILLIAMSON.—On Feb. 19th, at "Kingsmuir," Sutton, Surrey, to Surgeon David J. Williamson, M.D., R.N.V.R., and Mrs. Williamson (*née* Joan Bomford)—a son.

MARRIAGES.

BUCKLEY—BRINDEJONT.—On Feb. 17th, at the Church of St. Ferdinand des Ver. es, Paris, Captain Leonard Buckley, R.A.M.C., to Suzanne, only daughter of Prosper Brindejont, of Paris.

CRESSY—GRIESBACH.—On Feb. 19th, at the Parish Church, Alderton (Glos.), Charles James Cressy, M.R.C.S., L.R.C.P., to Julia, daughter of the late Sydney Griesbach, M.R.C.S., L.R.C.P., of Garforth, Leeds.

DE NYSSEN—EDWARDS.—On Feb. 15th, at the Parish Church, Halesworth, P. J. de Nyssen, M.R.C.S. Eng., L.R.C.P. Lond., to Rose Edwards, of Holton Lodge, third daughter of the late John Cooper Forster, President of the Royal College of Surgeons.

MCCALL—PRITCHARD.—On Feb. 17th, at the Church of "Our Lady Help of Christians," Blackheath, Henry Dundas McCall, M.R.C.S., L.R.C.P., R.A.M.C., to Margaret Ruth Mary, third daughter of Mr. and Mrs. W. R. Pritchard, Glenwood, Lee.

TREHERNE—BURPEE.—On Feb. 14th, at the Parish Church, Weybridge, Captain C. W. Treherne, R.A.M.C., to Marjorie, youngest daughter of Mr. and Mrs. F. Burpee, of Vancouver, B.C.

WATSON—TEEVAN.—On Feb. 1st, at St. James's, Spanish-place, W., Colonel C. Gordon Watson, C.M.G., F.R.C.S., of 82, Harley-street, to Geraldine, daughter of the late Charles James Teevan, of Woodside Court, Croydon.

DEATHS.

CURRIE.—On Feb. 16th, at Trinity Hall, Bungay, John Legge Currie, L.R.C.P. Lond., M.R.C.S.

FRANKLIN.—On Feb. 17th, at Westhay, East Sheen, suddenly, Surgeon-General Sir Benjamin Franklin, K.C.I.E., K.H.P., aged 72 years.

JESSOP.—On Feb. 16th, at Harley-street, of pneumonia, Walter Hamilton Hylton Jessop, M.A., M.B. Cantab., F.R.C.S., J.P., ophthalmic surgeon to St. Bartholomew's Hospital, and President of the Ophthalmological Society of the United Kingdom, in his 64th year.

LAWSON.—On Feb. 18th, at Ventnor Villas, Hove, Sussex, formerly of Holme House, Hebden Bridge, Yorks, Joseph Lawson, B.A., M.B., T.C.D., aged 70 years.

ROXBURGH.—On Feb. 16th, suddenly, of angina pectoris, Robert Roxburgh, M.B., F.R.C.S.E., honorary physician to the Weston-super-Mare Hospital, and honorary consulting physician to the Royal West of England Sanatorium, aged 63 years.

WOODCOCK.—On Feb. 17th, at Nottingham-place, Louisa Woodcock, M.D., B.S. Lond., M.A., T.C.D., aged 51 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 21st, 1917.

Date.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Tem.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 15	...	59	49	35	35	36	Overcast
,, 16	...	50	43	30	31	31	Foggy
,, 17	0·17	59	49	31	43	43	Raining
,, 18	...	53	50	40	40	41	Overcast
,, 19	0·05	53	45	39	40	40	Overcast
,, 20	0·15	49	49	40	41	41	Raining
,, 21	0·23	53	48	41	43	44	Overcast

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL MEN AND THE RIGHT TO REFUSE ATTENDANCE.

THE old question of the common-law medical rights of a medical practitioner to refuse to attend when summoned to visit a sick person without receiving a fee was raised at an inquest recently at York, when Dr. P. Schmidt was unjustly held by the jury to be "deserving of the severest censure in not carrying the case through." The medical man had received a fee for a previous attendance upon the deceased, a child of 6 months, but when sent for on the following day delayed going until the evening. He then recommended that the child should be taken to the county hospital, where the death took place a few minutes after the patient's admission. The fact that a second fee was not forthcoming was frankly admitted by the medical man to have been his reason for not attending when he was summoned. The report of the evidence given at the inquest by Dr. Schmidt justifies the surmise that a somewhat outspoken manner of asserting his right to ask for a fee and to refuse attendance in the absence of one may have prejudiced the medical man before the jury and may have been largely responsible for the censure passed upon him. The justice of such censure is not apparent. In refusing to attend in the absence of any prospect of remuneration a medical man exercises an undoubted right, which the public at large has recognised by instituting voluntary hospitals and dispensaries and Poor-law infirmaries for the benefit of those unable to pay for medical attendance. A medical man may, and very often does, attend poor patients without hope of reward, but the extent to which he does this is a matter which must be left to him to decide. One man having private means, or a remunerative practice, can afford to be generous in such matters where another cannot. A medical practitioner living in a poor neighbourhood would find a very large number of patients anxious to employ him and unable to pay him, if he once let it be known that his services were at the disposal of those so situated. In the same way a provision merchant in such a district who was ready to hand over his goods to those unable to pay for their purchases would soon have many customers. But neither the medical man nor the provision merchant would make a livelihood, and each has an equal right to endeavour to do so.

Probably if medical men asked the editors of their local daily and weekly papers to insert the above remarks, we would have a marked falling off in these very questionable censures by coroners and Poor-law juries.

VITAL STATISTICS OF THE FEDERATED MALAY STATES AND THE STRAITS SETTLEMENTS.

Sir Edward Lewis Brockman, K.C.M.G., Chief Secretary to the Government of the Federated Malay States (Perak, Selangor, Negri Sembilan, and Pahang), in his report for the year 1915, just presented to Parliament, states that as the conditions relating to immigration and emigration have recently been abnormal the present population is probably considerably less than that shown by the census of 1911, viz., 1,172,336. The number of births in 1915 was 29,699 and of deaths 33,899. There were 5778 deaths of infants under one year of age and the infantile mortality rate was 194 per 1000. It is suggested by the Principal Medical Officer that without malaria the infantile death-rate would not be of great importance. The death-rate in the principal towns in 1915 was: Kuala Lumpur, 27·83 per 1000; Ipoh, 27·8 per 1000; Taiping, 33·99; and Seremban, 47·15. Malaria accounted for 44 per cent. of the total deaths. Dysentery and diarrhœa caused 3148 deaths, beri-beri 871, and pulmonary tuberculosis 1995. There was a severe outbreak of small-pox in the district of Lower Perak. Several cases also occurred in Selangor and Negri Sembilan, but only one case was reported in Pahang. Two cases of plague occurred in Perak. Venereal diseases show a distinct falling-off. The medical institutions maintained by the Government comprise 42 hospitals, 9 jail hospitals, 2 lunatic asylums, 3 leper asylums, and 15 out-door dispensaries. The number of in-patients treated during the year was 72,792 and of out-patients 204,997, both totals showing a remarkable decrease as compared with the previous year. The reports of the lady medical officers at Kuala Kangsar and Kuala Pilah show that they are doing much good work. Their services are greatly appreciated. Attempts have been made to get into touch with native midwives, but without much success. One of the lady medical officers observes that the large percentage of normal maternity cases among Malay women gives the midwives the appearance of skill which they do not possess; and on the subject of infantile mortality she expresses the opinion that it is fever that more likely causes the high mortality than any errors in feeding.

On an estimated total population of 776,444 in the Straits Settlements, the birth-rate in 1915 was 29·25, and the death-rate 29·15 per 1000; for the European inhabitants, estimated at 8086, these ratios were 24·24 and 14·96 per 1000 respectively. The Principal Medical Officer, Dr. W. Gilmore Ellis, considers that on a different and more exact estimate of the population, according to the method of the medical officer of health of Singapore, the death-rate should be really 31·13 per 1000. The infantile mortality was 236·68 per 1000, being highest among Malays, who habitually feed their infants a few days old on boiled rice, which leads to indigestion and convulsions. Lectures on the subject are being given in the vernacular by Dr. Keun, which, it is hoped, may lead to improvement. There were 37 cases of plague (with 33 deaths) and 17 cases of cholera (with 10 deaths). Deaths from beri beri have decreased steadily from 2056 in 1911 to 1079 in 1915. At the Beri-beri Hospital, Pasir Panjang, all of the cases admitted had habitually eaten uncured Siam rice; of the 135 discharged 9 were recovered and 113 considerably improved. At the Leper Asylum, Penang, with 411 inmates, more than 70 cases have been treated with injections of nastin and Dr. Heiser's preparation of chaulmoogra oil; the results are being carefully watched, and in many instances considerable improvement (return of sensation, shrivelling up of nodules, disappearance of dermatitis) has been observed. There have been fewer admissions for ankylostomiasis (932) during 1915 than in either of the two years preceding, but owing to the paucity of health officers it has not been possible to make much progress in the eradication of the disease. Mr. Gilbert Brooke, chief health officer of Singapore, reports that the practical absence of infectious disease from all the great ports of the East is without parallel for several decades past; for five weeks from the beginning of September not a single port was in quarantine. No immigration was allowed during the first three months of the year, and for the next three months only limited immigration. Owing to the war the return pilgrimage season for Mecca had been accelerated into 1914, and no pilgrim sailings left the Straits at all for the 1915 season. A new quarantine and prevention of disease ordinance has been passed, including, among other improvements, the insistence on vaccination of unprotected immigrants from China and India, and discretionary powers for the detection and treatment of cases of infectious disease, and for their repatriation if necessary.

KITCHENER CLUB FOR WOUNDED SOLDIERS.

THIS club for wounded soldiers has been started under the ægis of the Red Cross at 8, Cambridge-gate, Regent's Park, London, N.W., and is open daily from 10 to 6. Reading and writing rooms are provided, and lunch and tea will be served free of charge.

WOMEN SANITARY INSPECTORS AND HEALTH VISITORS' ASSOCIATION.

THE 1916-1917 handbook of the association, just issued, contains the names of the executive officers and members of committees, the rules of the association, an alphabetical list of members and associates, and the report for the session 1915-16. Several members are engaged on war service. The honorary secretary of the association is Miss O'Kell, 12, Buckingham-street, Strand, London, W.C.

FOOD SUBSTITUTES IN GERMANY.

IT is probable that some difficulty is being experienced in those countries suffering from a shortage of food in administering the adulteration laws, inasmuch as mixtures are now allowed which were not allowed before. We have as examples in our own country the watering of spirits, the addition to wheat flour of other flours, and so forth. The opportunity, however, was sure to be one seized upon by the unscrupulous, and examples appear to have occurred in Germany of selling substitutes for the genuine article which can in no sense be regarded as supplying the necessary qualities of the comestibles so imitated.

In connexion with an exhibition of food substitutes a report has been issued by the Berlin Municipal Laboratory on the food adulterations which are at present so plentiful in Germany. It is stated that a large number of enterprising persons are devoting their time to the manufacture of food substitutes. Among these are the "bouillon cubes," which by law must contain at least 7½ per cent. of meat extract, but which actually consist of common salt together with a little colouring matter. "Powdered beef-tea," which is sold in attractive-looking small boxes, is composed of wheat-flour, common salt, a little clay, with a mere trace of meat extract. A "cheese substitute" in the form of a red powder contains 70 parts of common salt, 20 parts of powdered Hungarian pepper, a few grains of

aniseed, and some acid. Much-vaunted powders for making puddings contain coloured and flavoured potato flour, and are sold at 2*s.* 6*d.* per pound. There is even a substitute for pepper on the market. As the law has proved powerless against these fraudulent food articles, housewives in Berlin are urged to unite in self-defence.

EDIBLE SEAWEED.

To the Editor of THE LANCET.

SIR,—With reference to the note in THE LANCET of Feb. 10th under this heading respecting "laver," I think the following quotation from "A Popular History of British Seaweeds," by the Rev. D. Landsborough, A.L.S., in 1851, will prove interesting. He cites Professor W. H. Harvey, M.D., professor of botany, Dublin, in his large work "Phycologia Britannica," as saying of "laver":—

> After many hours' boiling, the frond is reduced to a somewhat slimy pulp, of a dark brown colour, which is eaten with pepper and lemon-juice or vinegar, and has an agreeable flavour to those who have conquered the repugnance to taste it, which its great ugliness induces, and many persons are very fond of it. It might become a valuable article of diet, in the absence of other vegetables, to the crews of our whaling vessels sailing in high latitudes, where every marine rock at half-tide abundantly produces it. In its prepared state it may be preserved for an indefinite time in close tin vessels.

The Rev. D. Landsborough adds: "We regard this as a valuable hint," and, in his introduction to his own book, makes the following interesting statement:—

> Even in our most common sea-wrack there are substances which may yet be turned to good account. One of these is mannite, the characteristic principle of manna, which my friend Dr. John Stenhouse has detected in many of our coarse seaweeds, but in greatest abundance in Laminaria saccharina, which we doubt not took its specific name from this circumstance. A quantity of this seaweed was by Dr. Stenhouse repeatedly digested with hot water, which formed with it a brownish, sweetish, mucilaginous solution. When evaporated to dryness on the water-bath it left a considerable quantity of a saline semi-crystalline mass; this was reduced to powder and treated with boiling alcohol, by which a considerable portion of it was dissolved. The alcoholic solution, on cooling, became nearly solid from the quantity of long transparent prismatic crystals with which it was filled. When purified by a second crystallisation these were deposited in large hard prisms of a fine silky lustre. By analysis it was found that this was mannite. The quantity of mannite contained is very considerable: one thousand grains of the seaweed treated in the way described gave about 12 per cent. of mannite. It is very beautiful—as pure white as loaf-sugar, and almost as sweet. Since I wrote the above I have examined and tasted mannite which I got from Dr. Stenhouse about four years ago, and it is as white and sweet as ever. Surely some use may be made of this marine treasure.

I am, Sir, yours faithfully,

Feb. 20th, 1917. EAST ANGLIAN.

THE Local Government Board last week increased the scales of allowances for the British-born wives of interned aliens. The maximum allowance for wives in London is now 12*s.* 6*d.* and outside London 10*s.*, with the addition of 3*s.* in respect of each child.

P. N.—Standard works of reference give congenital dilatation of the colon as the disease first described by Hirschsprung of Copenhagen in 1880.

Nemo.—Magazines and illustrated papers are still in demand by the British Red Cross for the sick and wounded in hospitals, and should be sent to the Honorary Secretary, Red Cross War Library, Surrey House, Marble Arch, London, W.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, March 1st.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—H. Russell Andrews, T. G. Stevens): at 8 P.M.

Specimens:

Mr. J. P. Hedley: Uterus containing Carcinoma and Sarcoma.

Dr. Herbert R. Spencer: Carcino-sarcoma Uteri.

Dr. Cuthbert Lockyer: (1) Simultaneous Bilateral Tubal Pregnancy; (2) Secondary Neuro-epithelioma in the Ovary of a Child of Three

Short Communications:

Dr. Hubert Roberts: (1) Curious Degeneration of a Cervical Fibroid; (2) Calcified Fibroid which caused Complete Torsion of the Uterus.

Papers:

Dr. E. W. Scripture: Two Cases of Psychic Dyspareunia treated by Mental Analysis.

Dr. Herbert R. Spencer: (1) Four Cases of Undiagnosed Cancer of the Cervix in 200 Total Hysterectomies for Myoma (with six illustrations). (2) Two Cases of Supravaginal Amputation of the Uterus for Sarcoma mistaken for Myoma (two illustrations and four micro-photographs).

Dr. G. F. Blacker: Supravaginal Amputation of Uterus for Sarcoma mistaken for Myoma.

Friday, March 2nd.

LARYNGOLOGY (Hon. Secretaries—Cecil I. Graham, Frank A. Rose): at 4 P.M.

Cases, &c.:

Dr. Dundas Grant: (1) Laryngeal Stridor; (2) Nasopharyngeal Growth; (3) Fibromata of Vocal Cords.

Dr. Irwin Moore: (1) Lymphadenoma of Nasopharynx; (2) Bone impacted in Œsophagus; (3) Pharyngeal Pouches.

Dr. G. W. Dawson: Four Cases.

Mr. Frank Taylor and Captain McKinstry: A Further Note on the Relationship between Vincent's Angina and Peri-dental Gingivitis.

N.B.—Members intending to show cases or specimens are reminded to send in particulars to the Senior Hon. Secretary at least 12 days before each meeting.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—4.30 P.M., Paper:—Mr. F. A. Hocking: The War and our Supply of Drugs.

HUNTERIAN SOCIETY, at the Royal Society of Medicine, 1, Wimpole-street, W.

WEDNESDAY.—9 P.M., Demonstration:—Dr. O. Leyton: The Differential Stethoscope.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY.—8.30 P.M., Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Milroy Lectures:—Dr. W. J. Howarth: Meat Inspection, with Special Reference to the Developments of Recent Years. (Lectures II. and III.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY AND WEDNESDAY.—5 P.M., Arris and Gale Lectures:—Dr. W. Harris: The Morphology of the Brachial Plexus in its Relation to Surgery.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

MENTAL AFTER CARE ASSOCIATION.

THURSDAY.—3 P.M., Annual Meeting at 9, Bramham-gardens, South Kensington, S.W.

ROYAL INSTITUTE OF PUBLIC HEALTH, Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—

WEDNESDAY.—4 P.M., Lecture VII.:—Dr. W. G. Savage: The Protection of the Milk Supply. Prof H. R. Kenwood, Prof. S. Delépine, Dr. C. Porter, and Mr. Wilfred Buckley have promised to take part in the discussion.

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